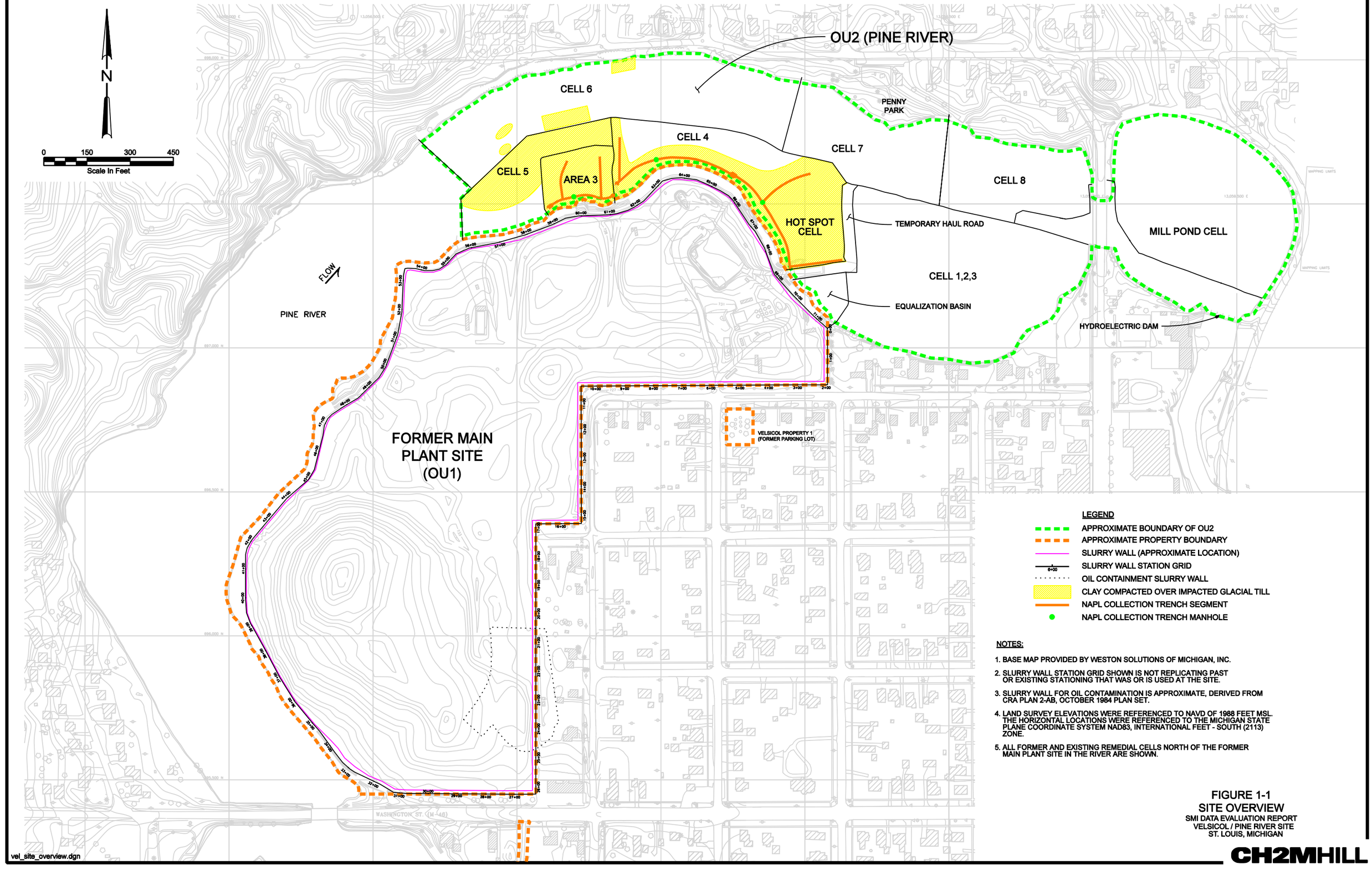


FIGURE 1-1
SITE OVERVIEW
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

vel_site_overview.dgn

CH2MHILL

CELL 6

CELL 4

CELL 7

CELL 5

AREA 3

HOT SPOT CELL

CELL 1,2,3

EQUALIZATION BASIN

13,056,500 E

13,057,000 E

13,057,500 E

13,058,000 E

13,058,500 E

697,500 N

697,000 N

696,500 N

N

0 80 160 240

Scale In Feet

PINE RIVER

FLOW

INTAKE

PUMP HOUSE 414

POND

SEWER

WELL #3

WELL #13

SEWERS

CALCIUM CHLORIDE TANK 506

COMP. HOUSE

PUMP HOUSE 104

LIME TREATMENT

ACID STORAGE TANKS

MONOCHLORO BENZENE RECOVERY

FLUME

CHLORINATORS

REFRIGERATING BUILDING

LOADING PLATFORM

PAN HOUSE

SALT WAREHOUSE 101

SALT WAREHOUSE 102

BOILER HOUSE 501

TURBINE ROOM & PUMP HOUSE 103

WAREHOUSE 206

D.D.T. PLANT 213

D.D.T. SALVAGE

3" WATER

CESSPOOL

BURNT DOLOMITE STORAGE TANK

CLASSIFIER & BALL MILL HOUSE

COOLING TOWER

BITTERN

OIL STORAGE

DOLOMITE KILN

M.G.O. KILN

DOLOMITE STORAGE BIN ELEVATOR

OVERHEAD STEAM, AIR & GAS LINES

12" FEWEL

4" WATER

OPERATING HOUSE

PIPE SHED

BRINE

METHYL BROMIDE PLANT 304

HYDRO BROM. PLANT

BROMINE PLANT

BROMINE WAREHOUSE 301

BROMIDES

BROMINE WARE HOUSE 302

8" SEWER

12" SEWER

BRINE TANK

PUMP HOUSE 107

CALCIUM CHLORIDE TANK 113

OFFICE

LOADING STAND

STORM ROOM

WARE HOUSE 412

CARBONATING BUILDING

CARBONATING TANKS

CALCINERS

TANK 413

LAB 409

WASHING THICKENERS

FILTER HOUSE

5" WATER

LIME HOUSE

WATER TREATMENT

WATER STORAGE

SETTLING TANK B 418

P.H.

PUMP HOUSE 415

THICKENER 419

STORAGE HOUSE 514

BRICK SHED 513

CITY WATER

GAS

GAS METER HOUSE

ORGANIC BUILDING 305

OVERHEAD STEAM, AIR & GAS LINE

MAINTENANCE BUILDING 505

RACK

SHED 510

509 TOOL HOUSE

ENGINEERING 508

TIME CLOCK HOUSE 507

BANKSON STREET

NORTH STREET

D.D.T LIQUID BUILDING 207

ACID TANK

ACID TANK

ALCOHOL TANK

BENZEN TANK

SWITCH HOUSE

MAIN OFFICE 504

RESEARCH LAB 505

515 BOILER HOUSE

4" SEWER

WATER STREET

2" WATER

SWITCH HOUSE

WASH HOUSE

COMPRESSOR HOUSE

DIESEL FUEL OIL 232

COMPRESSOR BUILDING

209

AGRICULTURAL D.D.T. DUST BUILDING

CENTER STREET

NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF DETROIT, MICHIGAN
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SOURCE OF INFORMATION IS THE MICHIGAN CHEMICAL CORPORATION PLANT LAYOUT DRAWING NO. 597 (25-040-D) DATED 7-1-1944 AND REVISED 11-21-1947, 6-22-1948 AND 2-20-1950.
4. THREE DIGIT NUMBERS FOR STRUCTURES WERE RECORDED ON THE ORIGINAL DRAWING. THE GENERAL LEGEND FROM THE DRAWING IS ALSO SHOWN HERE.
5. SMI - SOURCE MIGRATION INVESTIGATION

LEGEND FOR DEPARTMENTS

DEPARTMENT	NO.	TANKS & BUILDINGS
SALT	1	101-199
D.D.T.	2	201-299
BROMINE	3	301-399
M.G.O.	4	401-499
ENG./STEAM/ POWER/MISC	5	501-599

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- FORMER RAILROAD SPUR
- FORMER ABOVE-GROUND UTILITY
- FORMER SUBSURFACE UTILITY
- 1950 SHORELINE

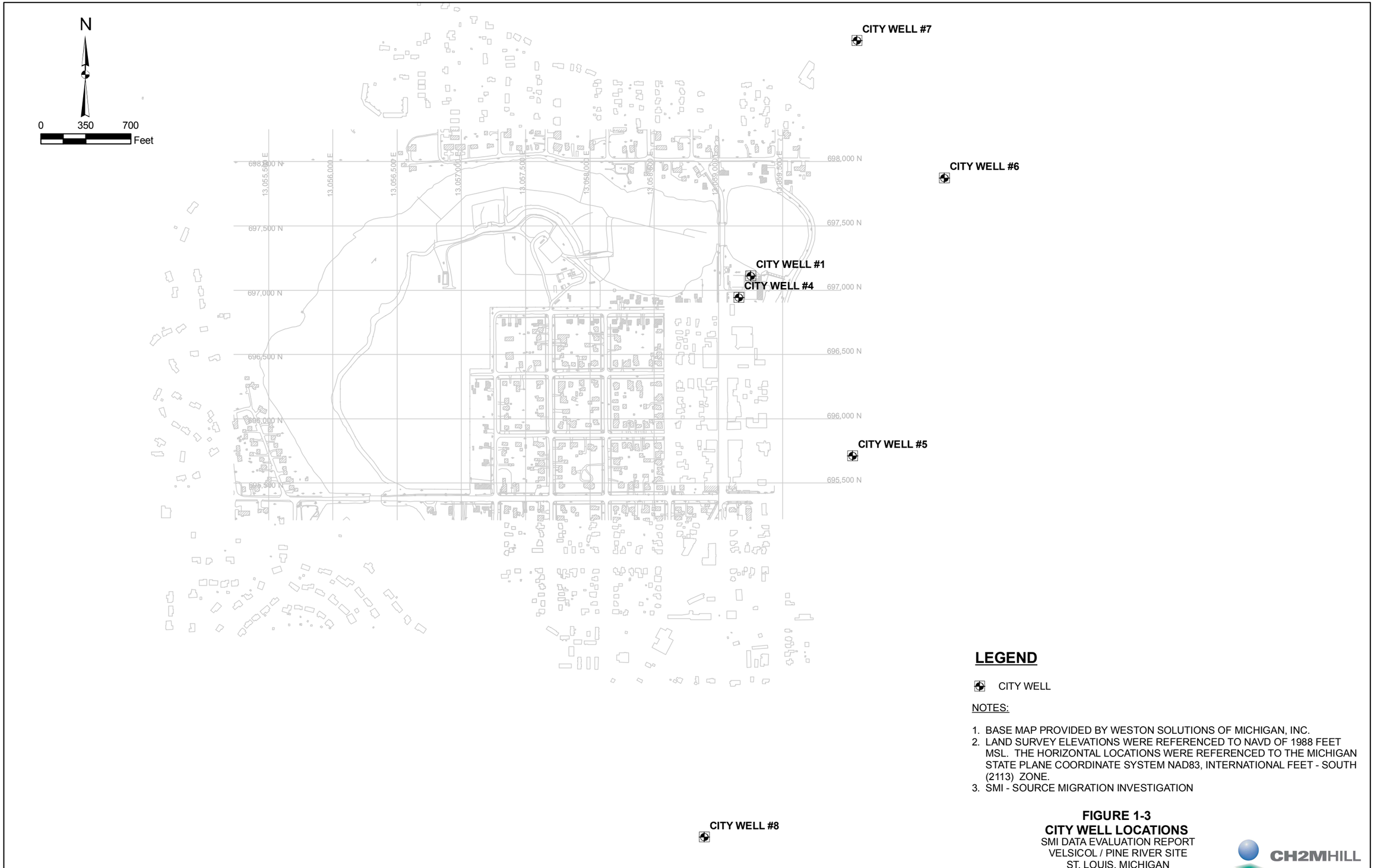
FIGURE 1-2
1950 MICHIGAN CHEMICAL COMPANY SITE STRUCTURES

SMI DATA EVALUATION REPORT

VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

figure_1-02_smi.dgn

CH2MHILL



LEGEND

CITY WELL

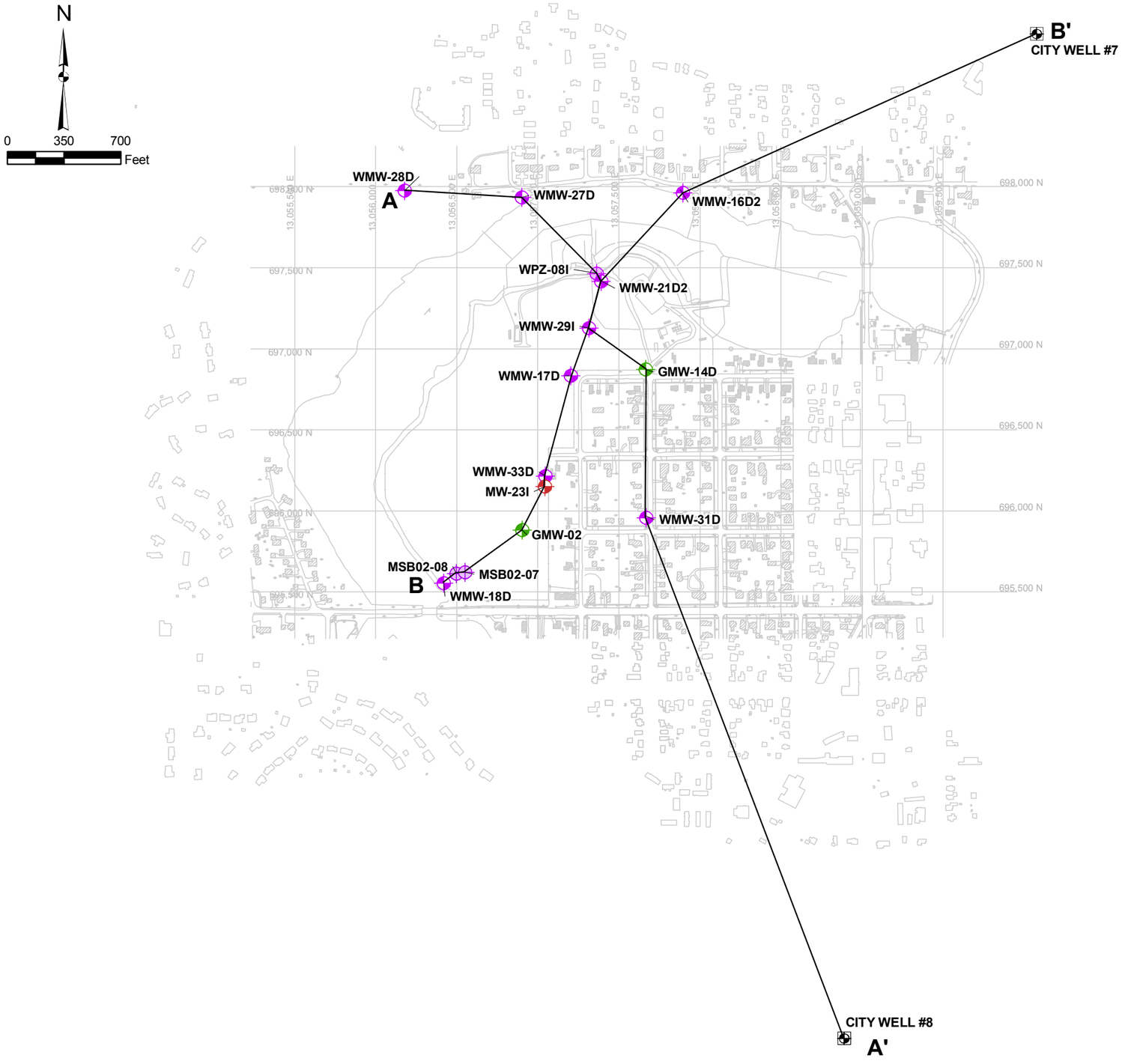
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 1-3
CITY WELL LOCATIONS
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\01-03_Vel_City_Well_Locations.mxd, Date: 09 01, 2005, User: MPETERSH



LEGEND

- CITY WATER SUPPLY WELL
- EXISTING MONITORING WELL (INSTALLED PRE-2000)
- EXISTING MONITORING WELL (INSTALLED BY MDEQ/WESTON)
- SOIL BORING LOCATION (ADVANCED BY MDEQ/WESTON)
- MONITORING WELL (INSTALLED BY USEPA/CH2M HILL)

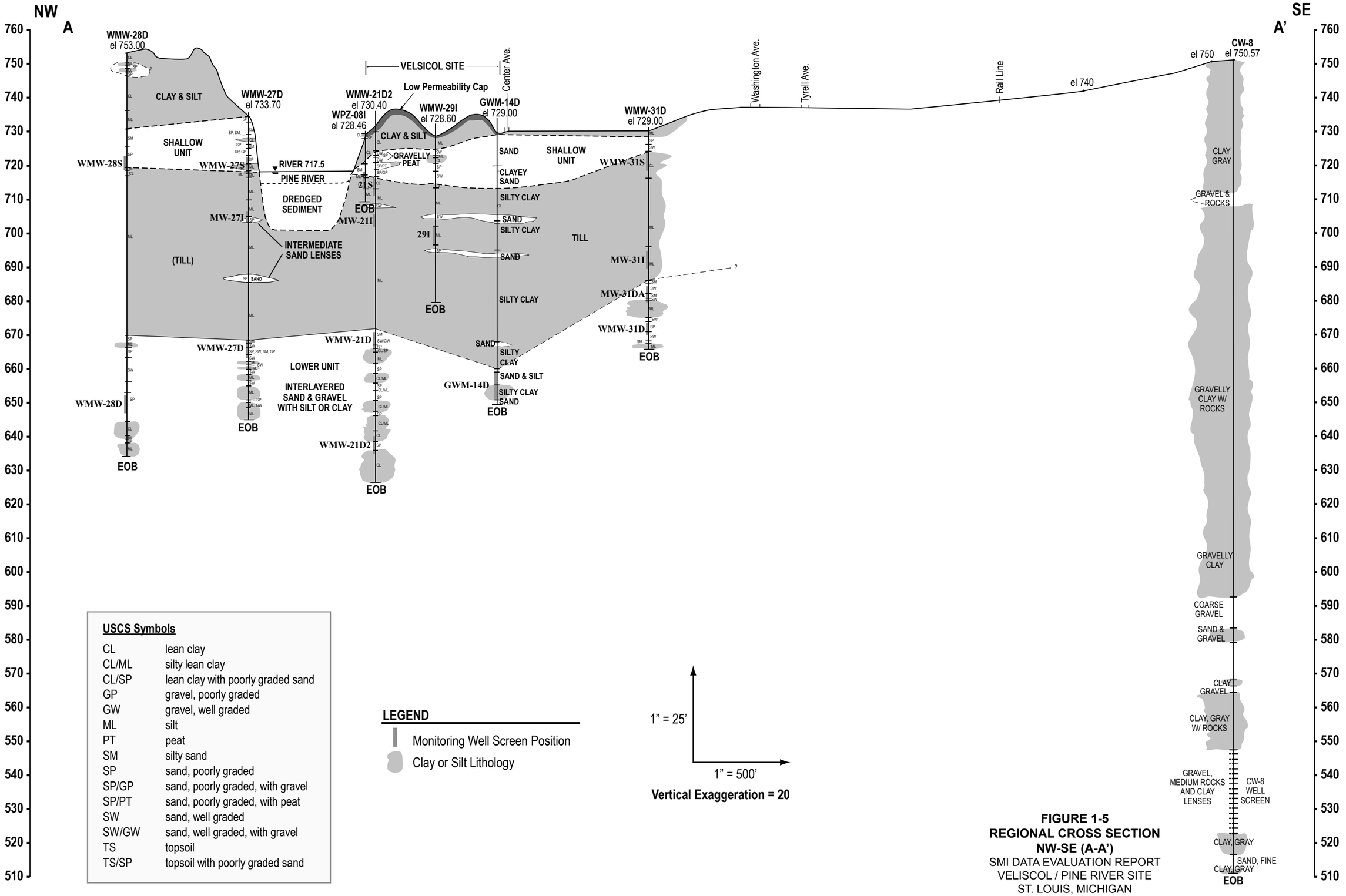
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 1-4
REGIONAL CROSS SECTION LOCATIONS
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\01-04_Vel_Regional_Cross_Section_Locations.mxd, Date: 09 21, 2005, User: MPETERSH



USCS Symbols

CL	lean clay
CL/ML	silty lean clay
CL/SP	lean clay with poorly graded sand
GP	gravel, poorly graded
GW	gravel, well graded
ML	silt
PT	peat
SM	silty sand
SP	sand, poorly graded
SP/GP	sand, poorly graded, with gravel
SP/PT	sand, poorly graded, with peat
SW	sand, well graded
SW/GW	sand, well graded, with gravel
TS	topsoil
TS/SP	topsoil with poorly graded sand

LEGEND

Monitoring Well Screen Position

Clay or Silt Lithology

1" = 25'

1" = 500'

Vertical Exaggeration = 20

FIGURE 1-5
REGIONAL CROSS SECTION
NW-SE (A-A')
SMI DATA EVALUATION REPORT
VELISCOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

SW

B

NE

B'

Slurry Wall

Low Permeability Cap

Oil Containment Area Slurry Wall

Slurry Wall

WMW-18D el 728.9

MSB02-08 el 733.3

MSB02-07 el 735.3

GWM-02 el 738.56

MW-23I el 733.00

WMW-33D el 732.00

WMW-17D el 729.6

WMW-29I el 728.60

WWM-21D2 el 730.40

MW-16D2A el 727.15

CW-7

740
730
720
710
700
690
680
670
660
650
640
630
620
610
600
590

Limestone w/clay

INTERLAYERED SAND, SILT, CLAY

SHALLOW UNIT

SHALLOW UNIT

PINE RIVER

WMW-18S

WMW-17S

WMW-21S

WMW-29I

WMW-21I

GMW-16S

701.34

MW-16I

HARD SILT

(TILL)

(TILL)

DREDGED SEDIMENT

SOFT SILT

MW-23I

EOB

WMW-17I

ML with SAND SEAMS

EOB

WMW-33D

EOB

WMW-17D

tr. GW, SAND SEAMS

EOB

WMW-21D

ML, tr. GW

ML NO SAND or GW

WMW-18D

EOB

LOWER UNIT

INTERLAYERED SAND & GRAVEL WITH SILT OR CLAY

WMW-21D2

EOB

SANDY SILT MOIST

WMW-16D2

GMW-16D

MW-16D2A

EOB

SAND

SAND

SAND

CLAY

SAND, GRAVEL

HARD CLAY

"BOULDERS"

HARD CLAY

"BOULDERS"

CLAY

SAND, GRAVEL

HARD, GRAVELLY CLAY

SOFT, SANDY CLAY

BOTTOM OF WELL CASING

FINE SAND

SAND, GRAVEL

INTERLAYERED SAND & GRAVEL VS. CLAY (LAYER THICKNESS NOT TO SCALE)

SAND, GRAVEL

CW-7 WELL SCREEN BOTTOM OF SCREEN

CLAY & GRAVEL

EOB @ 138' bgs

USCS Symbols

CL	lean clay
CL/ML	silty lean clay
CL/SP	lean clay with poorly graded sand
GP	gravel, poorly graded
GW	gravel, well graded
ML	silt
PT	peat
SM	silty sand
SP	sand, poorly graded
SP/GP	sand, poorly graded, with gravel
SP/PT	sand, poorly graded, with peat
SW	sand, well graded
SW/GW	sand, well graded, with gravel
TS	topsoil
TS/SP	topsoil with poorly graded sand

LEGEND

Monitoring Well Screen Position

Clay or Silt Lithology

1" = 20'

1" = 400'

Veritcal Exaggeration = 20

FIGURE 1-6
REGIONAL CROSS SECTION
SW-NE (B-B')
SMI DATA EVALUATION REPORT
VELISCOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

N

0 100 200 300
Scale In Feet

13,056,000 E
13,056,500 E
13,057,000 E
13,057,500 E
13,058,000 E
13,058,500 E
698,000 N
697,500 N
697,000 N
696,500 N

LEGEND:

- BORINGS NOT INCLUDED IN CROSS SECTION
- BORINGS
- TEST PIT LOCATION NOT INCUDED IN CROSS SECTION
- TEST PIT LOCATION
- APPROXIMATE PROPERTY BOUNDARY

C'
C

CELL 6
CELL 4
CELL 7
CELL 8
CELL 5
AREA 3
HOT SPOT CELL
CELL 1,2,3
EQUALIZATION BASIN
MAIN PLANT SITE

WMW-16 (D2)
CBR-19
CBR-13
CBR-71
C5TP-2
CBR-17
C5TP-4
CBR-21
GWM-10D
CBP-15
CBP-12B

WMW-28S
WMW-28D
WMW-27S
WMW-27D
WMW-16S
WMW-16D
WPW-16D
WMW-29I
WMW-29D2
WMW-17I
WMW-19I
WMW-19D2

CBR-68
CBR-64
CBR-67
CBR-78
CBR-65
CBR-76
CBR-66
CBR-72
CBR-73
CBR-69
CBR-74
CBR-77
CBR-51
CBR-14
CBR-75
CBR-20
C5TP-3
C5TP-13
CBR-23
CBR-22
CBR-50
CBR-57
C5TP-6
C5TP-1
CBR-15
CBR-49
CBR-48
CBR-55
CBR-56
C5TP-7
CBR-16
CBR-54
CBR-17
CBR-12
CBR-11
CBR-47
CBR-25
CBR-24
CBR-18
C5TP-5
CBR-46
CBR-53
CBR-52
CBR-45
CBR-44
CBR-43
CBR-61
CBR-62
CBR-26
CBR-63
CBR-40
CBR-41
CBR-42
CBR-60
CBR-38
CBR-27
CBR-59
CBR-39
CBR-37
CBR-28
CBR-58
CBR-35
CBR-29
CBR-14

CBP-17
CBP-09
CBP-18
CBP-19
CBP-10
CBP-06
CBP-08
CBP-11
CBP-16
CBP-13
CBP-12A
CBP-13A
CBP-12
CBP-22
CBP-07
CBP-20
CBP-04
CBP-03
CBP-25
CBP-05
CPB-21
CPB-01
CBP-23
CBP-02
CPB-24

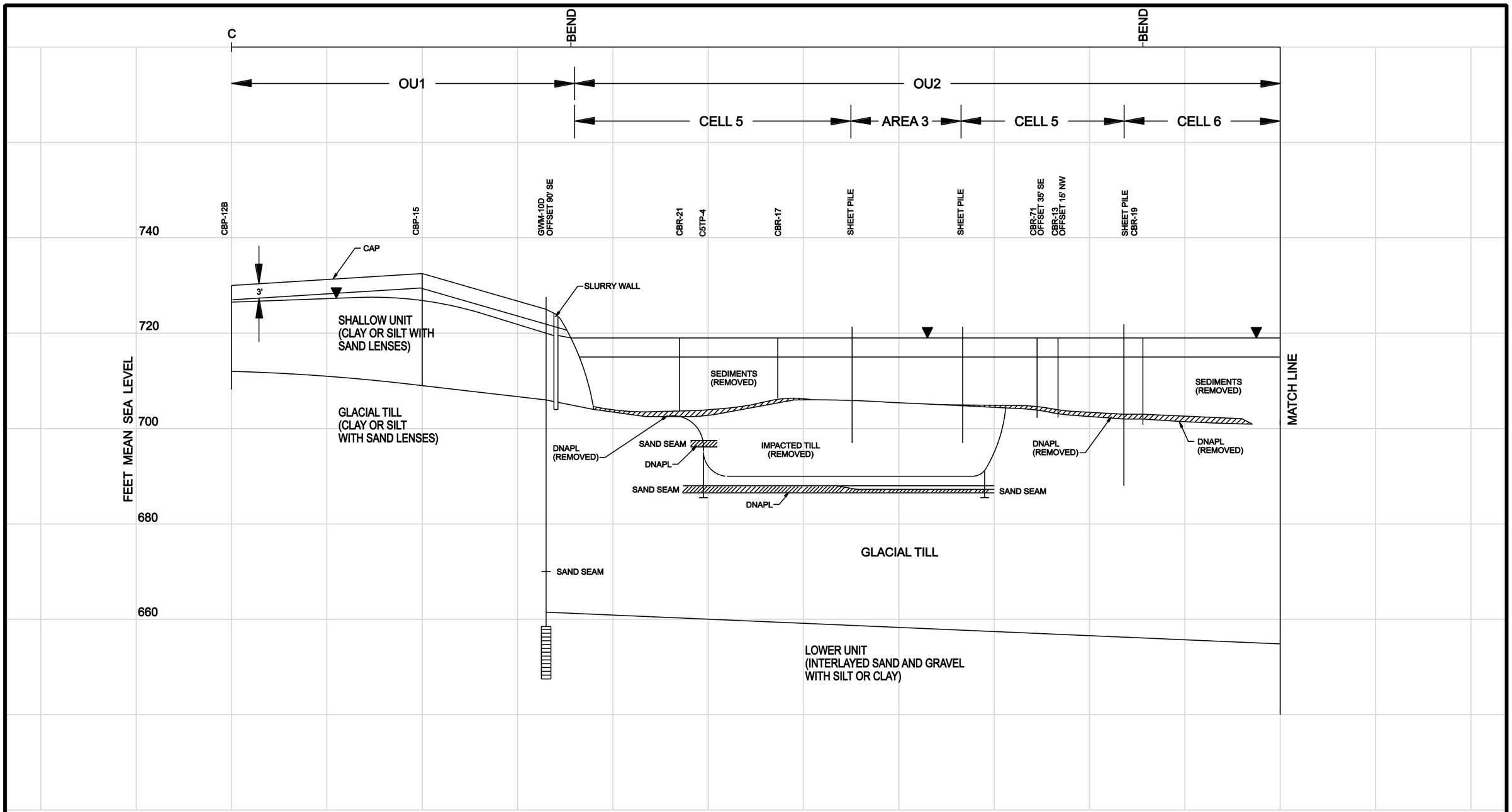
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION
4. CROSS SECTION BASED ON DATA COLLECTED PRIOR TO THE SMI.

FIGURE 1-7
OU2 CROSS-SECTION LOCATION PLAN
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

figure_1-04_smi.dgn

CH2MHILL



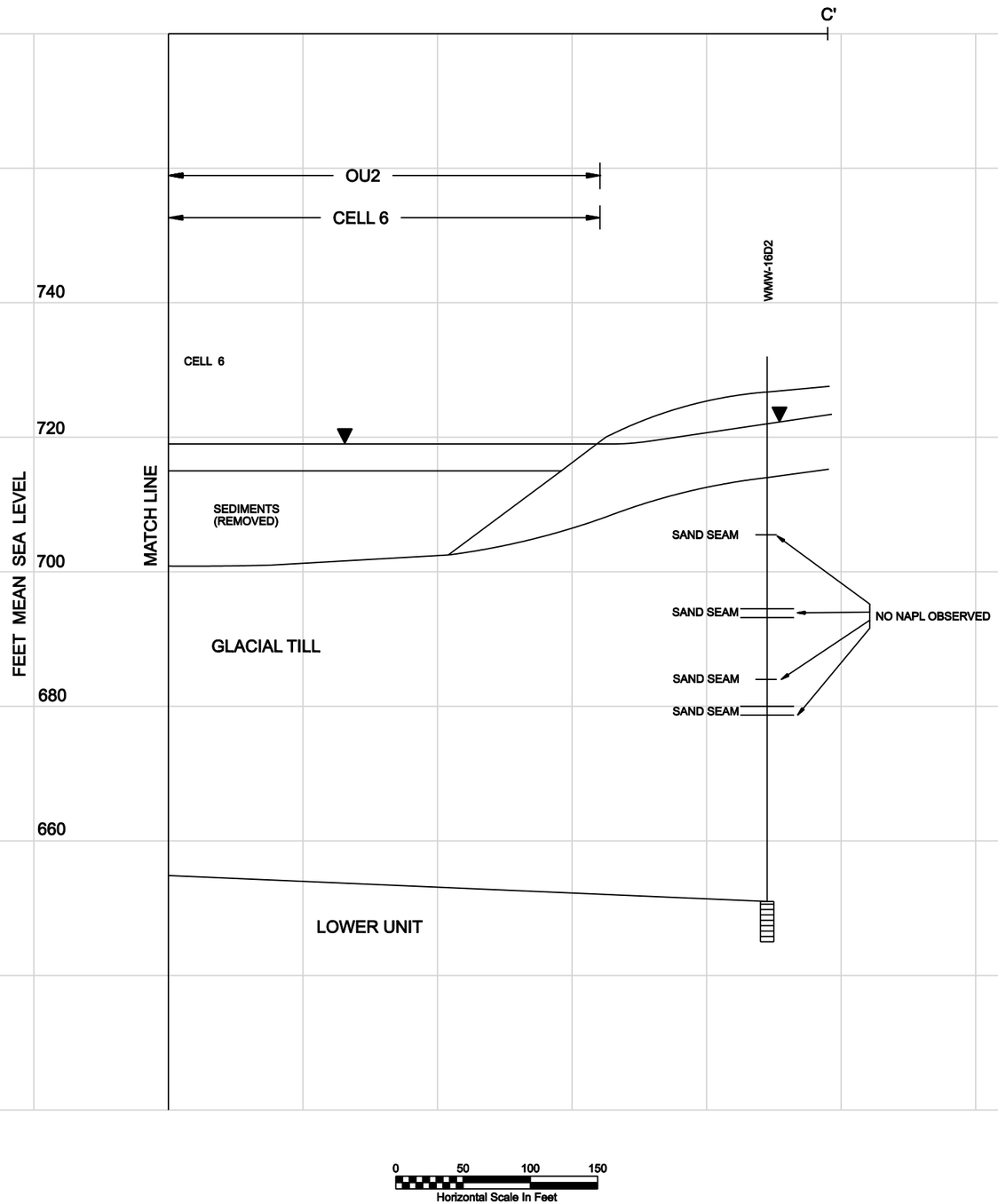
NOTES:

1. SMI - SOURCE MIGRATION INVESTIGATION
2. CROSS SECTION BASED ON DATA COLLECTED PRIOR TO THE SMI.

FIGURE 1-8A
OU2 CROSS SECTION C - C' (SOUTHWEST)
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

figure_1-08a_smi.dgn

CH2MHILL



0 50 100 150

Horizontal Scale In Feet

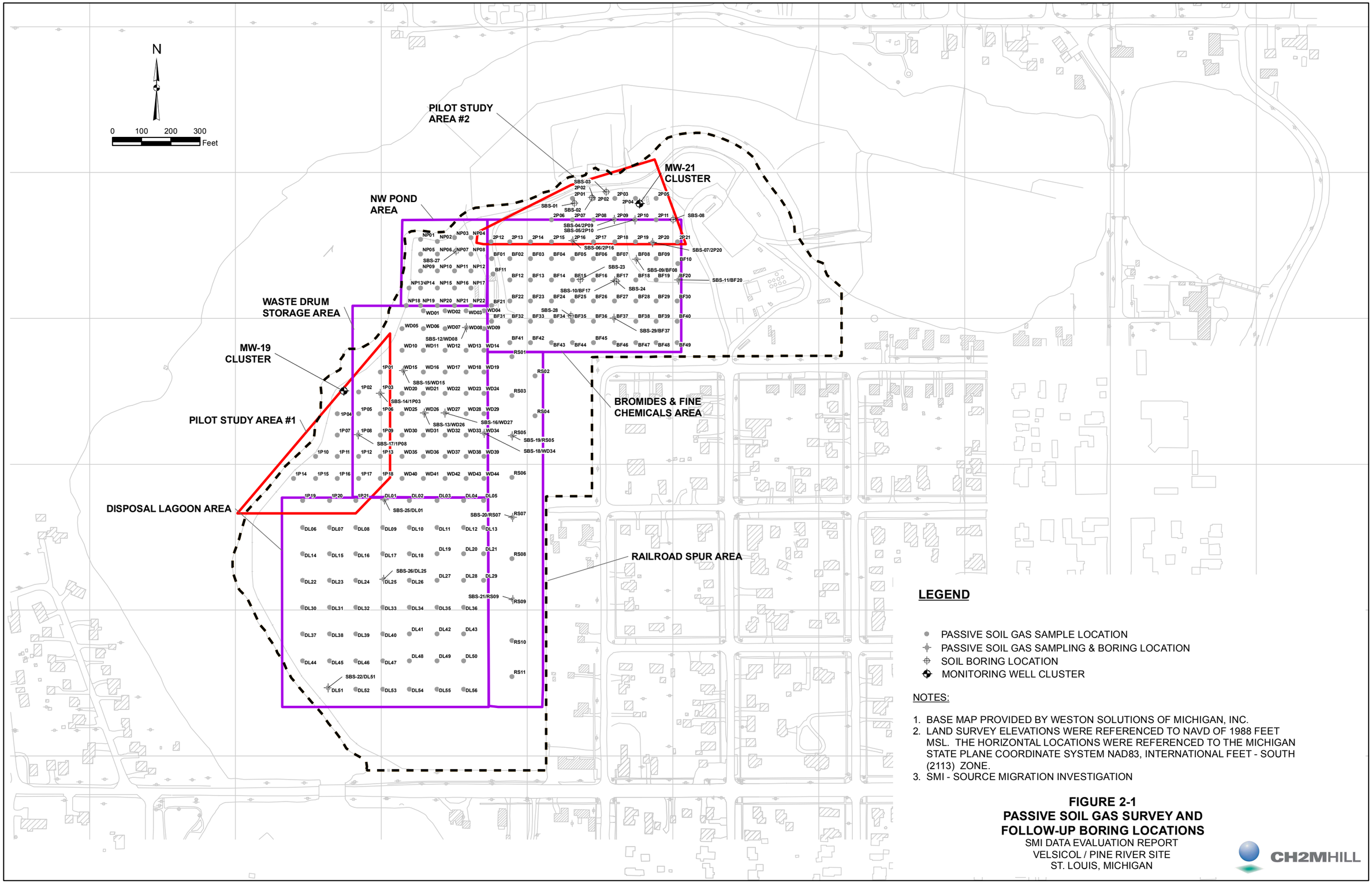
NOTES:

1. SMI - SOURCE MIGRATION INVESTIGATION
2. CROSS SECTION BASED ON DATA COLLECTED PRIOR TO THE SMI.

FIGURE 1-8B
OU2 CROSS SECTION C - C' (NORTHEAST)
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

figure_1-08b_smi.dgn

CH2MHILL



LEGEND

- PASSIVE SOIL GAS SAMPLE LOCATION
- PASSIVE SOIL GAS SAMPLING & BORING LOCATION
- SOIL BORING LOCATION
- MONITORING WELL CLUSTER

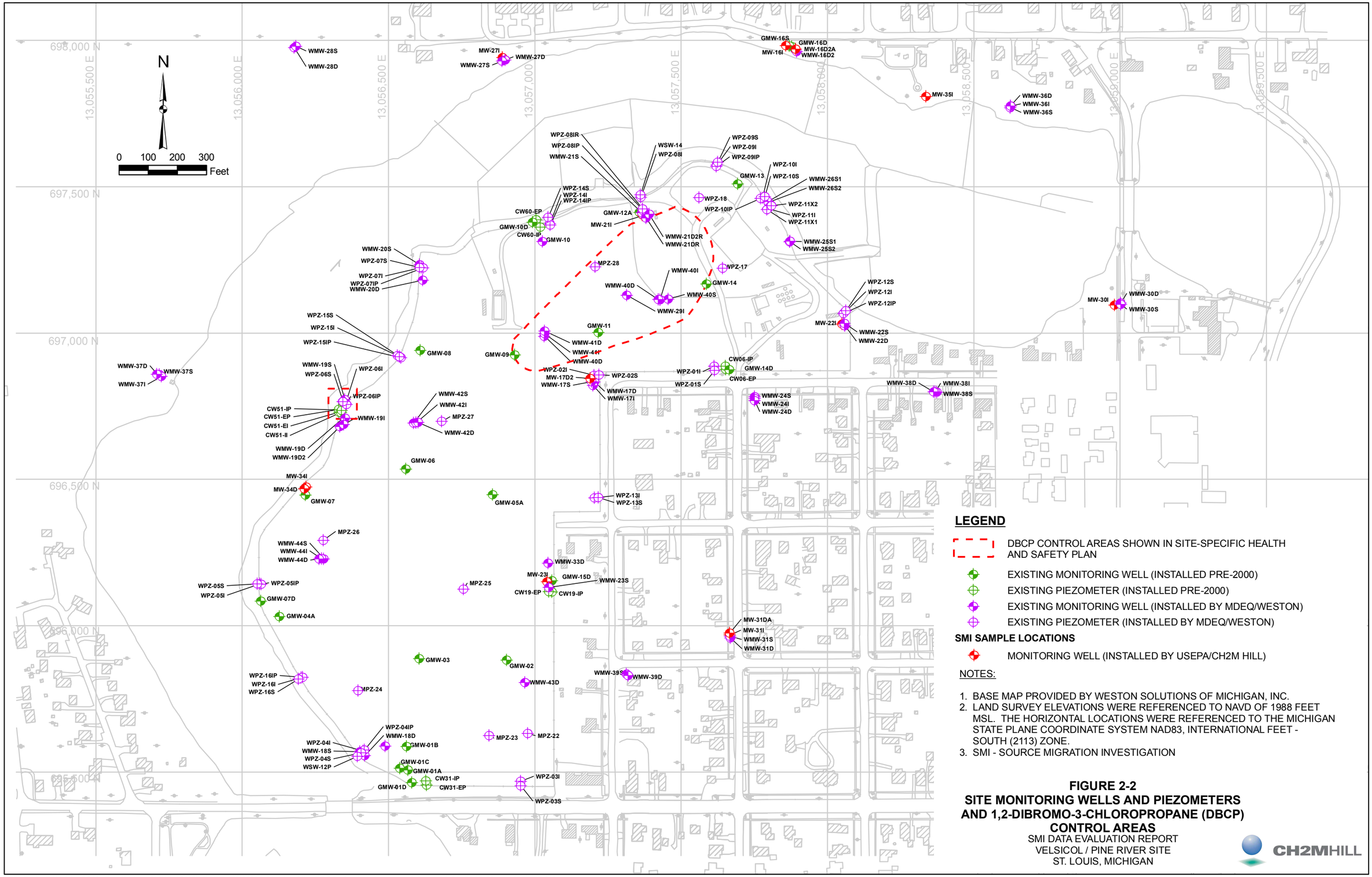
NOTES:

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3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 2-1
PASSIVE SOIL GAS SURVEY AND FOLLOW-UP BORING LOCATIONS
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

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LEGEND

- DBCP CONTROL AREAS SHOWN IN SITE-SPECIFIC HEALTH AND SAFETY PLAN
- EXISTING MONITORING WELL (INSTALLED PRE-2000)
- EXISTING PIEZOMETER (INSTALLED PRE-2000)
- EXISTING MONITORING WELL (INSTALLED BY MDEQ/WESTON)
- EXISTING PIEZOMETER (INSTALLED BY MDEQ/WESTON)

SMI SAMPLE LOCATIONS

- MONITORING WELL (INSTALLED BY USEPA/CH2M HILL)

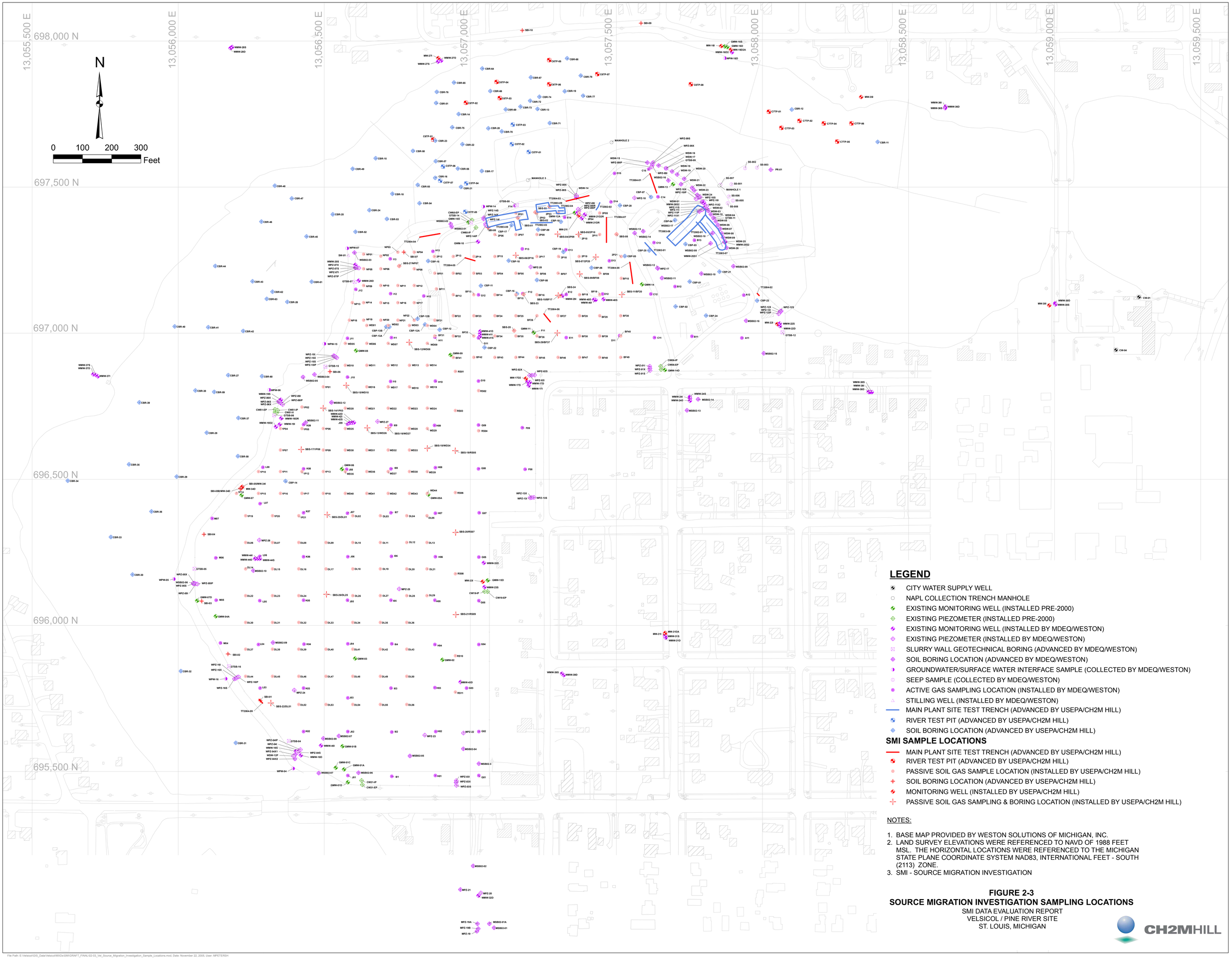
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3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 2-2
SITE MONITORING WELLS AND PIEZOMETERS AND 1,2-DIBROMO-3-CHLOROPROPANE (DBCP) CONTROL AREAS
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

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LEGEND

- CITY WATER SUPPLY WELL
- NAPL COLLECTION TRENCH MANHOLE
- EXISTING MONITORING WELL (INSTALLED PRE-2000)
- EXISTING PIEZOMETER (INSTALLED PRE-2000)
- EXISTING MONITORING WELL (INSTALLED BY MDEQ/WESTON)
- EXISTING PIEZOMETER (INSTALLED BY MDEQ/WESTON)
- SLURRY WALL GEOTECHNICAL BORING (ADVANCED BY MDEQ/WESTON)
- SOIL BORING LOCATION (ADVANCED BY MDEQ/WESTON)
- GROUNDWATER/SURFACE WATER INTERFACE SAMPLE (COLLECTED BY MDEQ/WESTON)
- SEEP SAMPLE (COLLECTED BY MDEQ/WESTON)
- ACTIVE GAS SAMPLING LOCATION (INSTALLED BY MDEQ/WESTON)
- STILLING WELL (INSTALLED BY MDEQ/WESTON)
- MAIN PLANT SITE TEST TRENCH (ADVANCED BY USEPA/CH2M HILL)
- RIVER TEST PIT (ADVANCED BY USEPA/CH2M HILL)
- SOIL BORING LOCATION (ADVANCED BY USEPA/CH2M HILL)

SMI SAMPLE LOCATIONS

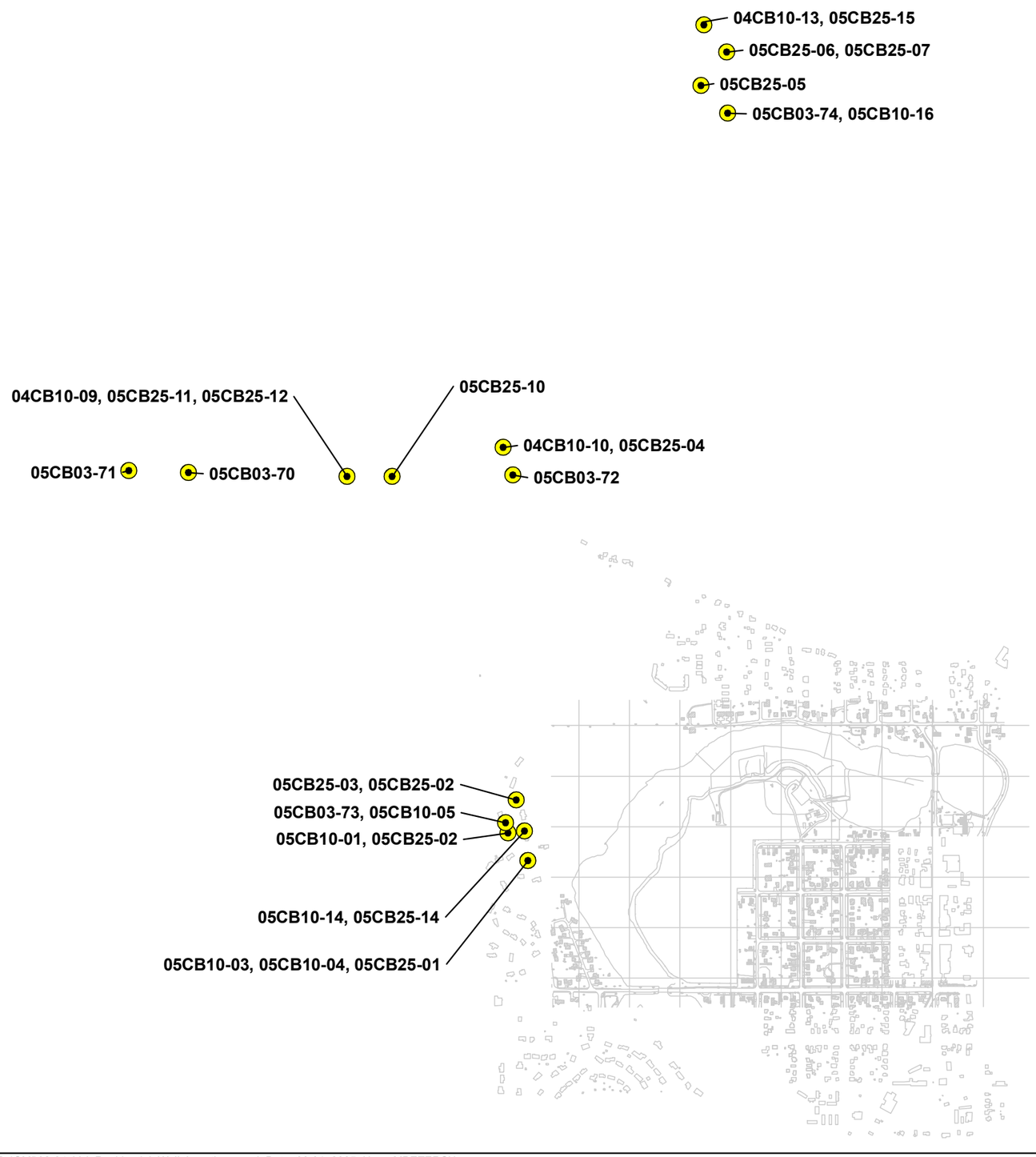
- MAIN PLANT SITE TEST TRENCH (ADVANCED BY USEPA/CH2M HILL)
- RIVER TEST PIT (ADVANCED BY USEPA/CH2M HILL)
- PASSIVE SOIL GAS SAMPLE LOCATION (INSTALLED BY USEPA/CH2M HILL)
- SOIL BORING LOCATION (ADVANCED BY USEPA/CH2M HILL)
- MONITORING WELL (INSTALLED BY USEPA/CH2M HILL)
- PASSIVE SOIL GAS SAMPLING & BORING LOCATION (INSTALLED BY USEPA/CH2M HILL)

NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 2-3
SOURCE MIGRATION INVESTIGATION SAMPLING LOCATIONS
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL



N

0 600 1,200
Feet

LEGEND

RESIDENTIAL WELL

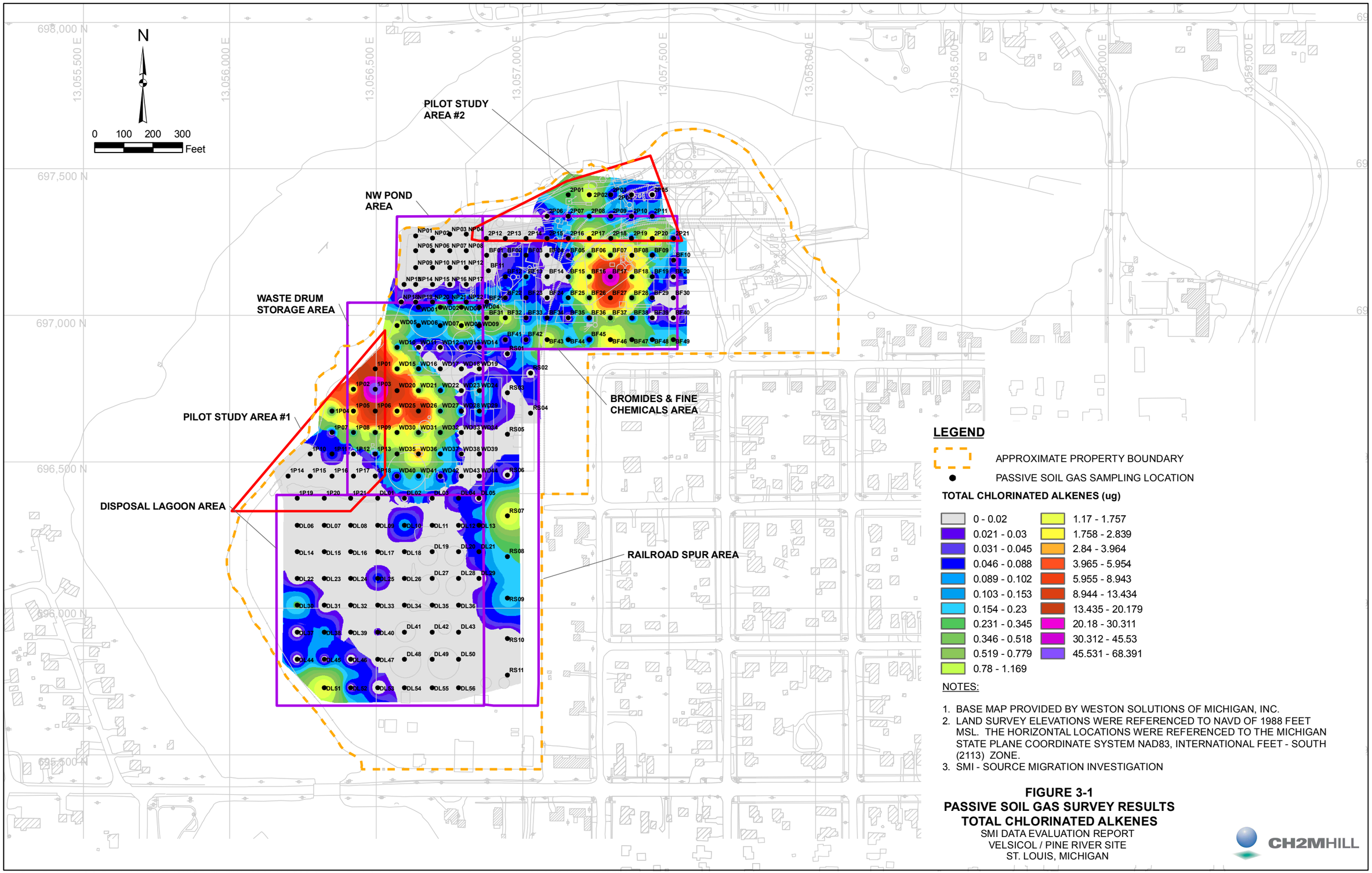
NOTES:

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2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 2-4
RESIDENTIAL WELL LOCATIONS
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\02-04_Vel_Residential_Well_Locations.mxd, Date: 08 31, 2005, User: MPETERSH



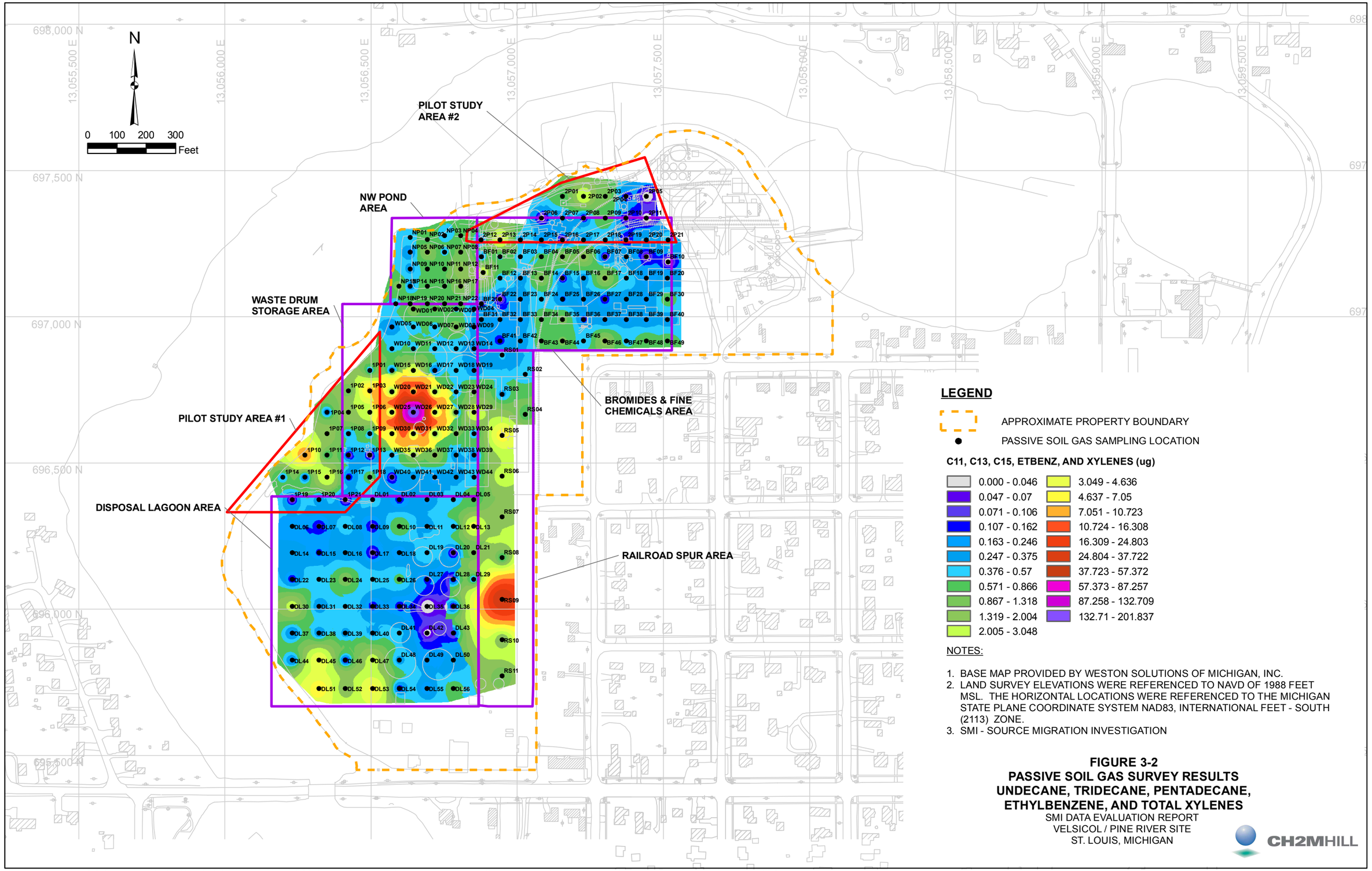
NOTES:

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2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-1
PASSIVE SOIL GAS SURVEY RESULTS
TOTAL CHLORINATED ALKENES
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-01_Vel_PSG_Results_Total_Chlorinated_Alkenes.mxd, Date: November 21, 2005, User: MPETERSH



LEGEND

APPROXIMATE PROPERTY BOUNDARY

PASSIVE SOIL GAS SAMPLING LOCATION

C11, C13, C15, ETBENZ, AND XYLENES (ug)

0.000 - 0.046	3.049 - 4.636
0.047 - 0.07	4.637 - 7.05
0.071 - 0.106	7.051 - 10.723
0.107 - 0.162	10.724 - 16.308
0.163 - 0.246	16.309 - 24.803
0.247 - 0.375	24.804 - 37.722
0.376 - 0.57	37.723 - 57.372
0.571 - 0.866	57.373 - 87.257
0.867 - 1.318	87.258 - 132.709
1.319 - 2.004	132.71 - 201.837
2.005 - 3.048	

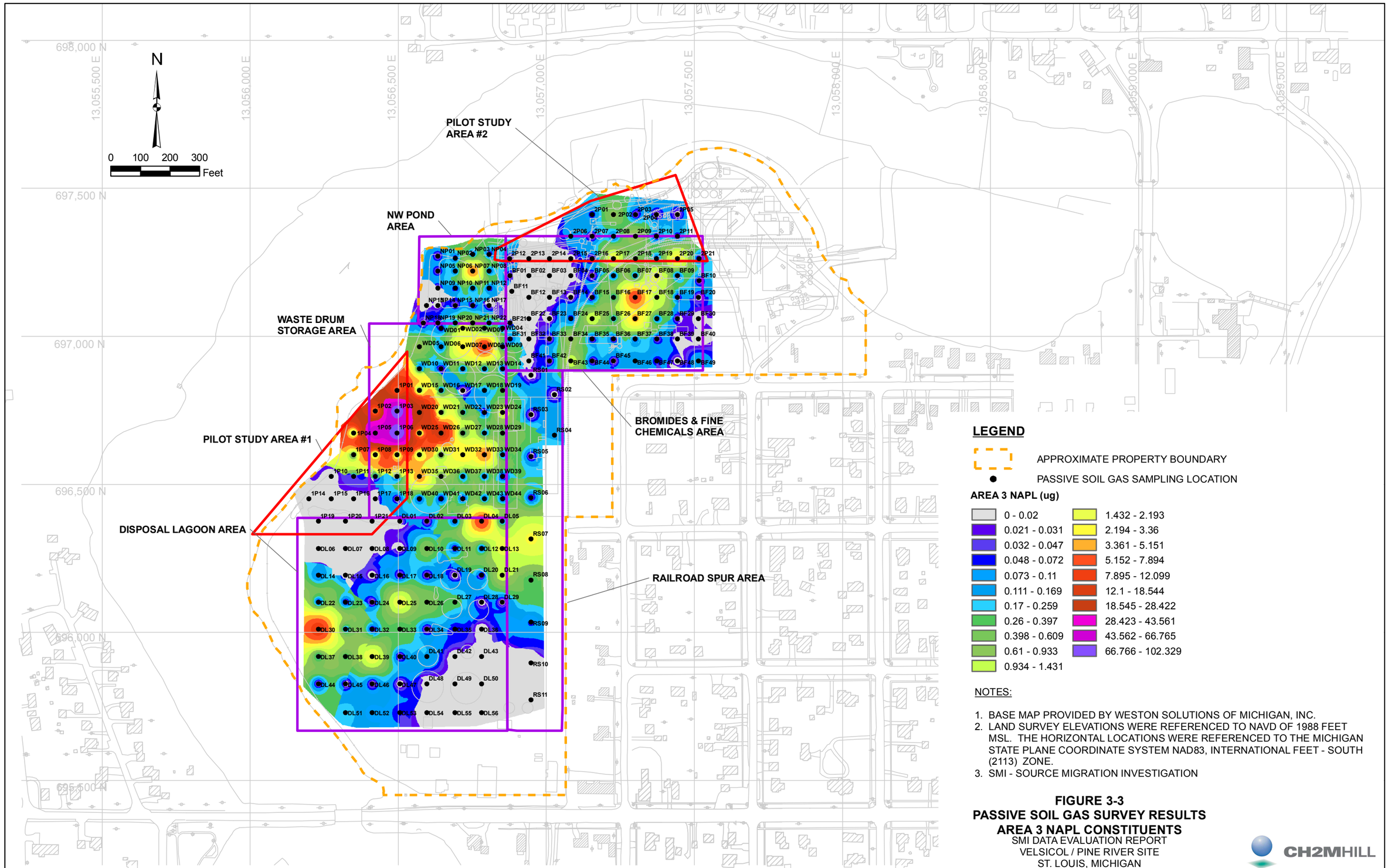
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-2
PASSIVE SOIL GAS SURVEY RESULTS
UNDECANE, TRIDECANE, PENTADECANE, ETHYLBENZENE, AND TOTAL XYLENES
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

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LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- PASSIVE SOIL GAS SAMPLING LOCATION

AREA 3 NAPL (ug)

0 - 0.02	1.432 - 2.193
0.021 - 0.031	2.194 - 3.36
0.032 - 0.047	3.361 - 5.151
0.048 - 0.072	5.152 - 7.894
0.073 - 0.11	7.895 - 12.099
0.111 - 0.169	12.1 - 18.544
0.17 - 0.259	18.545 - 28.422
0.26 - 0.397	28.423 - 43.561
0.398 - 0.609	43.562 - 66.765
0.61 - 0.933	66.766 - 102.329
0.934 - 1.431	

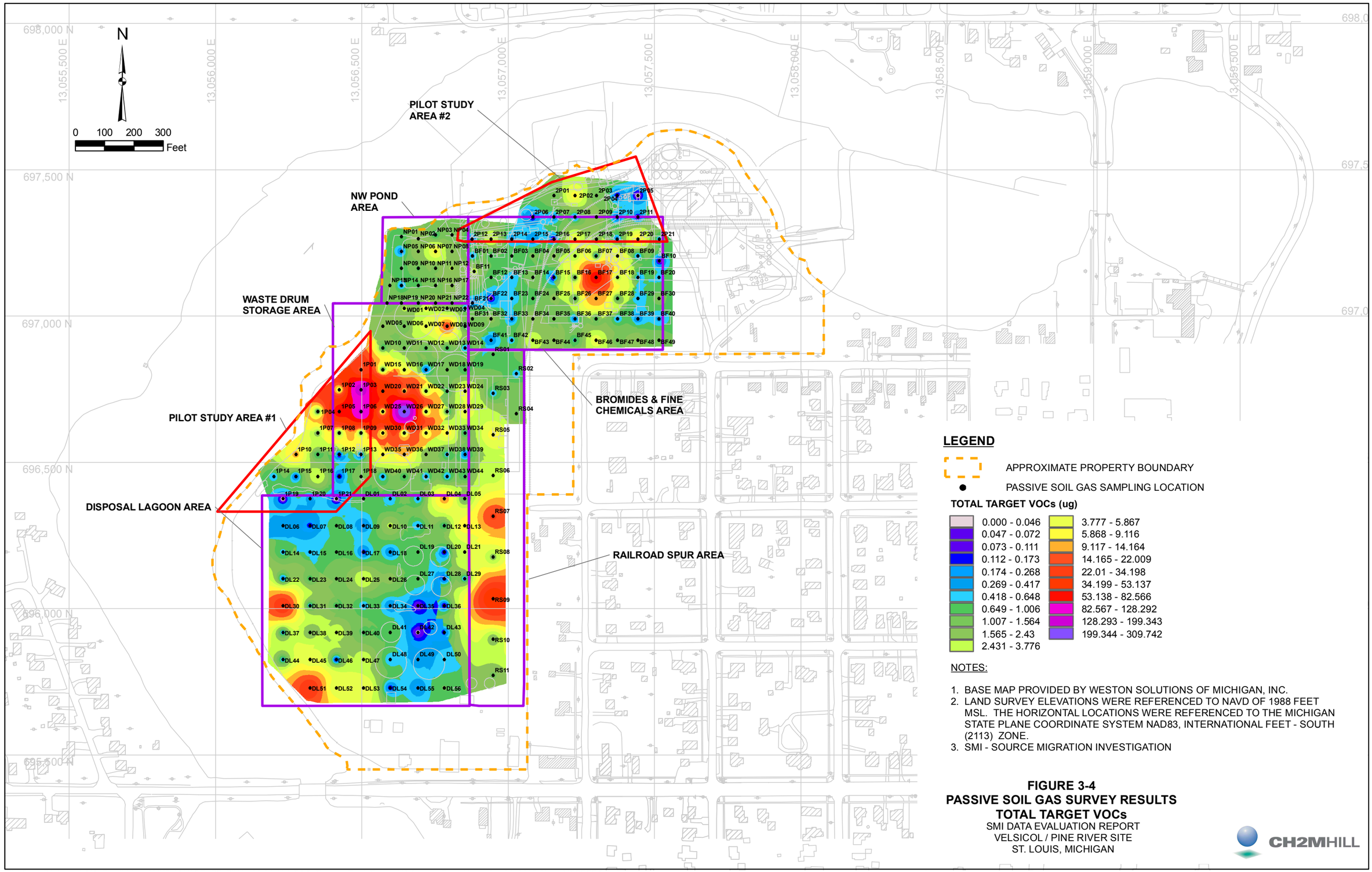
NOTES:

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3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-3
PASSIVE SOIL GAS SURVEY RESULTS
AREA 3 NAPL CONSTITUENTS
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

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LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- PASSIVE SOIL GAS SAMPLING LOCATION

TOTAL TARGET VOCs (ug)

0.000 - 0.046	3.777 - 5.867
0.047 - 0.072	5.868 - 9.116
0.073 - 0.111	9.117 - 14.164
0.112 - 0.173	14.165 - 22.009
0.174 - 0.268	22.01 - 34.198
0.269 - 0.417	34.199 - 53.137
0.418 - 0.648	53.138 - 82.566
0.649 - 1.006	82.567 - 128.292
1.007 - 1.564	128.293 - 199.343
1.565 - 2.43	199.344 - 309.742
2.431 - 3.776	

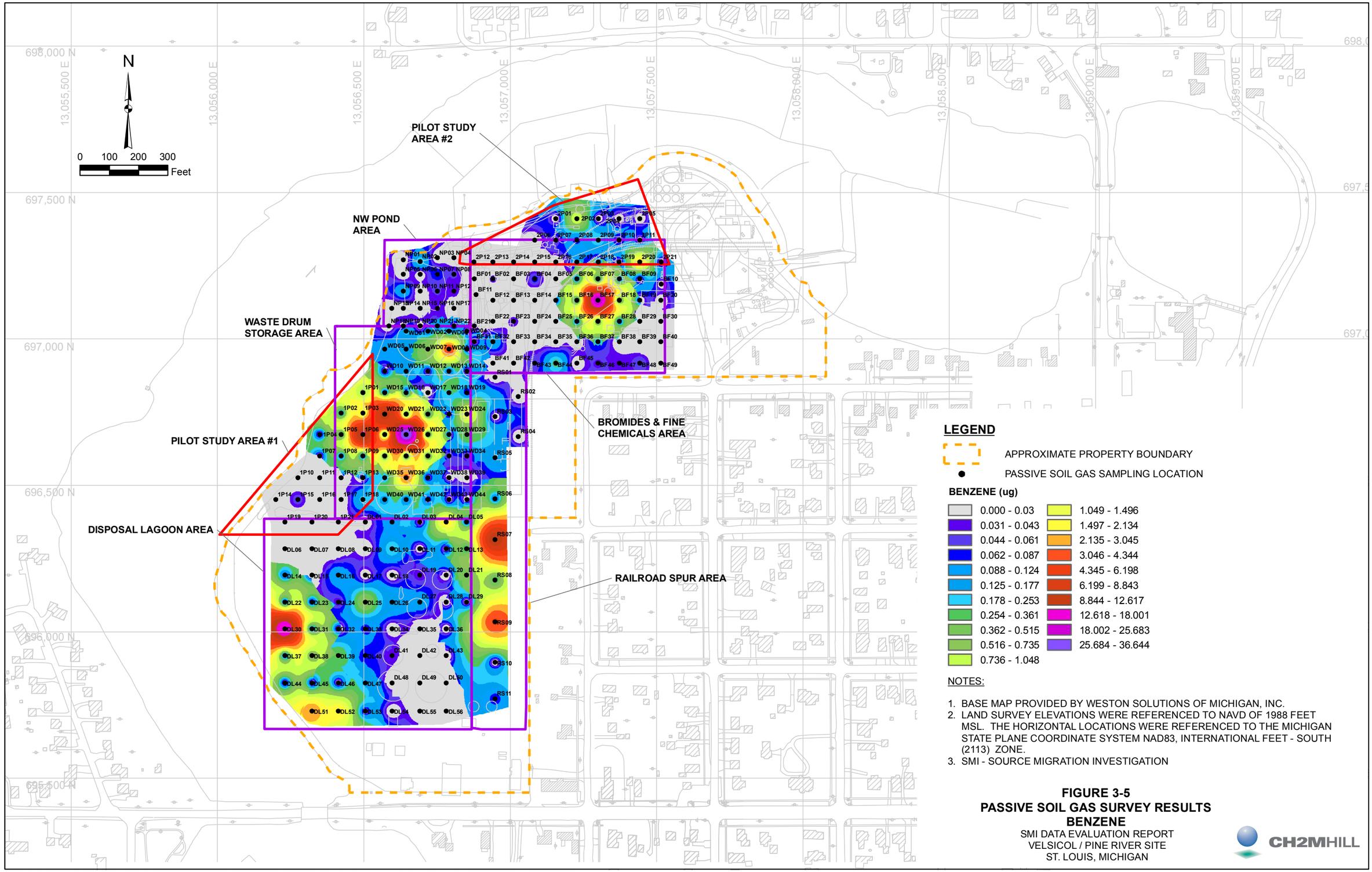
NOTES:

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2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-4
PASSIVE SOIL GAS SURVEY RESULTS
TOTAL TARGET VOCs
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

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LEGEND

APPROXIMATE PROPERTY BOUNDARY

PASSIVE SOIL GAS SAMPLING LOCATION

BENZENE (ug)

0.000 - 0.03	1.049 - 1.496
0.031 - 0.043	1.497 - 2.134
0.044 - 0.061	2.135 - 3.045
0.062 - 0.087	3.046 - 4.344
0.088 - 0.124	4.345 - 6.198
0.125 - 0.177	6.199 - 8.843
0.178 - 0.253	8.844 - 12.617
0.254 - 0.361	12.618 - 18.001
0.362 - 0.515	18.002 - 25.683
0.516 - 0.735	25.684 - 36.644
0.736 - 1.048	

NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-5
PASSIVE SOIL GAS SURVEY RESULTS
BENZENE
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-05_Vel_PSG_Results_Benzene.mxd, Date: November 21, 2005, User: MPETERSH

SBS-02	13' - 14.5'	14.5' - 15'
1,2-DIBROMO-3-CHLOROPROPANE	<11.3	<13.3
BENZENE	0.67 J	0.66 J
CHLOROBENZENE	0.53 J	4.8 J
TRICHLOROETHYLENE (TCE)	<11.3	4 J

SBS-03	11' - 11.5'	11.5' - 12'
1,2-DIBROMO-3-CHLOROPROPANE	< 38.4	<19.2
BENZENE	< 38.4	<19.2
CHLOROBENZENE	< 38.4	<19.2
TRICHLOROETHYLENE (TCE)	< 38.4	<19.2

SBS-04	10' - 12'	12' - 14'
1,2-DIBROMO-3-CHLOROPROPANE	<18.2	< 28.8
BENZENE	8.2 J	43
CHLOROBENZENE	<18.2	< 28.8
TRICHLOROETHYLENE (TCE)	2.2 J	9 J

SBS-05	14' - 16'
1,2-DIBROMO-3-CHLOROPROPANE	38800
BENZENE	184
CHLOROBENZENE	99.2
TRICHLOROETHYLENE (TCE)	2.8 J

SBS-01	8' - 12'
1,2-DIBROMO-3-CHLOROPROPANE	<17.7
BENZENE	3.4 J
CHLOROBENZENE	< 17.7
TRICHLOROETHYLENE (TCE)	< 17.7

SBS-08	16' - 18'
1,2-DIBROMO-3-CHLOROPROPANE	< 10.8
BENZENE	44.1
CHLOROBENZENE	2.9 J
TRICHLOROETHYLENE (TCE)	< 10.8

SBS-06	14' - 15'
1,2-DIBROMO-3-CHLOROPROPANE	<18.2
BENZENE	< 18.2
CHLOROBENZENE	0.82 J
TRICHLOROETHYLENE (TCE)	< 18.2

SBS-07	16' - 18'
1,2-DIBROMO-3-CHLOROPROPANE	8.5 J
BENZENE	28
CHLOROBENZENE	< 13.6
TRICHLOROETHYLENE (TCE)	< 13.6

SBS-09	12' - 14'
1,2-DIBROMO-3-CHLOROPROPANE	< 8.4
BENZENE	670 J
CHLOROBENZENE	< 8.4
TRICHLOROETHYLENE (TCE)	< 8.4

SBS-27	4' - 6'
1,2-DIBROMO-3-CHLOROPROPANE	< 1650
BENZENE	65.6 J
CHLOROBENZENE	< 1650
TRICHLOROETHYLENE (TCE)	< 1650

SBS-11	10' - 12'
1,2-DIBROMO-3-CHLOROPROPANE	< 7.9
BENZENE	46.5
CHLOROBENZENE	2.3 J
TRICHLOROETHYLENE (TCE)	27.7

SBS-12	12' - 14'
1,2-DIBROMO-3-CHLOROPROPANE	< 13.9
BENZENE	3.9 J
CHLOROBENZENE	< 13.9
TRICHLOROETHYLENE (TCE)	< 13.9

SBS-10	8' - 10'
1,2-DIBROMO-3-CHLOROPROPANE	< 13.6
BENZENE	7.2
CHLOROBENZENE	2.3
TRICHLOROETHYLENE (TCE)	18.5

SBS-15	18' - 20'
1,2-DIBROMO-3-CHLOROPROPANE	< 14.1
BENZENE	48.8
CHLOROBENZENE	7.2 J
TRICHLOROETHYLENE (TCE)	3.2 J

SBS-24	10' - 13'
1,2-DIBROMO-3-CHLOROPROPANE	21.2 J
BENZENE	1220
CHLOROBENZENE	11.7
TRICHLOROETHYLENE (TCE)	603

SBS-14	9' - 10'
1,2-DIBROMO-3-CHLOROPROPANE	< 14.9
BENZENE	9840
CHLOROBENZENE	900 J
TRICHLOROETHYLENE (TCE)	44.9

SBS-23	16' - 18'
1,2-DIBROMO-3-CHLOROPROPANE	13000
BENZENE	0.8 J
CHLOROBENZENE	1.7 J
TRICHLOROETHYLENE (TCE)	8.3

SBS-13	12' - 14'
1,2-DIBROMO-3-CHLOROPROPANE	< 11
BENZENE	8.2 J
CHLOROBENZENE	33.2
TRICHLOROETHYLENE (TCE)	1.5 J

SBS-29	15' - 17'
1,2-DIBROMO-3-CHLOROPROPANE	< 1200
BENZENE	74.5 J
CHLOROBENZENE	< 1200
TRICHLOROETHYLENE (TCE)	1870

SBS-17	13' - 15'
1,2-DIBROMO-3-CHLOROPROPANE	< 12.4
BENZENE	3.8 J
CHLOROBENZENE	75.1
TRICHLOROETHYLENE (TCE)	< 12.4

SBS-28	12' - 16'
1,2-DIBROMO-3-CHLOROPROPANE	87500
BENZENE	< 21200
CHLOROBENZENE	< 21200
TRICHLOROETHYLENE (TCE)	80700

SBS-16	4' - 6'
1,2-DIBROMO-3-CHLOROPROPANE	< 20.8
BENZENE	< 20.8
CHLOROBENZENE	2.2 J
TRICHLOROETHYLENE (TCE)	27

SBS-19	16' - 18'
1,2-DIBROMO-3-CHLOROPROPANE	< 12.1
BENZENE	< 12.1
CHLOROBENZENE	< 12.1
TRICHLOROETHYLENE (TCE)	< 12.1

SBS-25	12' - 14'
1,2-DIBROMO-3-CHLOROPROPANE	< 2260
BENZENE	1820 J
CHLOROBENZENE	391000 J
TRICHLOROETHYLENE (TCE)	415 J

SBS-18	8' - 10'
1,2-DIBROMO-3-CHLOROPROPANE	< 11.5
BENZENE	0.42 J
CHLOROBENZENE	1.7 J
TRICHLOROETHYLENE (TCE)	< 11.5

SBS-20	4' - 6'
1,2-DIBROMO-3-CHLOROPROPANE	< 7.6
BENZENE	6.5 J
CHLOROBENZENE	17.6
TRICHLOROETHYLENE (TCE)	0.47 J

SBS-21	4' - 10'
1,2-DIBROMO-3-CHLOROPROPANE	< 44.1
BENZENE	28.4 J
CHLOROBENZENE	< 44.1
TRICHLOROETHYLENE (TCE)	< 44.1

SBS-26	12' - 14'
1,2-DIBROMO-3-CHLOROPROPANE	< 25.3
BENZENE	9420
CHLOROBENZENE	28.2 J
TRICHLOROETHYLENE (TCE)	26.7 J

SBS-22	10' - 12'
1,2-DIBROMO-3-CHLOROPROPANE	< 9.5
BENZENE	< 9.5
CHLOROBENZENE	0.73 J
TRICHLOROETHYLENE (TCE)	< 9.5

698,000 N
697,500 N
13,055,500 E
13,057,000 E
13,057,500 E
13,058,000 E
13,058,500 E
13,059,500 E
698,000
697,500
697,000
N
0 100 200 300
Feet

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- PASSIVE SOIL GAS FOLLOW-UP BORING
- PASSIVE SOIL GAS SAMPLING LOCATION

TOTAL TARGET VOC RESULTS FROM PASSIVE SOIL GAS SURVEY (ug)

0.000 - 0.046	3.777 - 5.867
0.047 - 0.072	5.868 - 9.116
0.073 - 0.111	9.117 - 14.164
0.112 - 0.173	14.165 - 22.009
0.174 - 0.268	22.01 - 34.198
0.269 - 0.417	34.199 - 53.137
0.418 - 0.648	53.138 - 82.566
0.649 - 1.006	82.567 - 128.292
1.007 - 1.564	128.293 - 199.343
1.565 - 2.43	199.344 - 309.742
2.431 - 3.776	

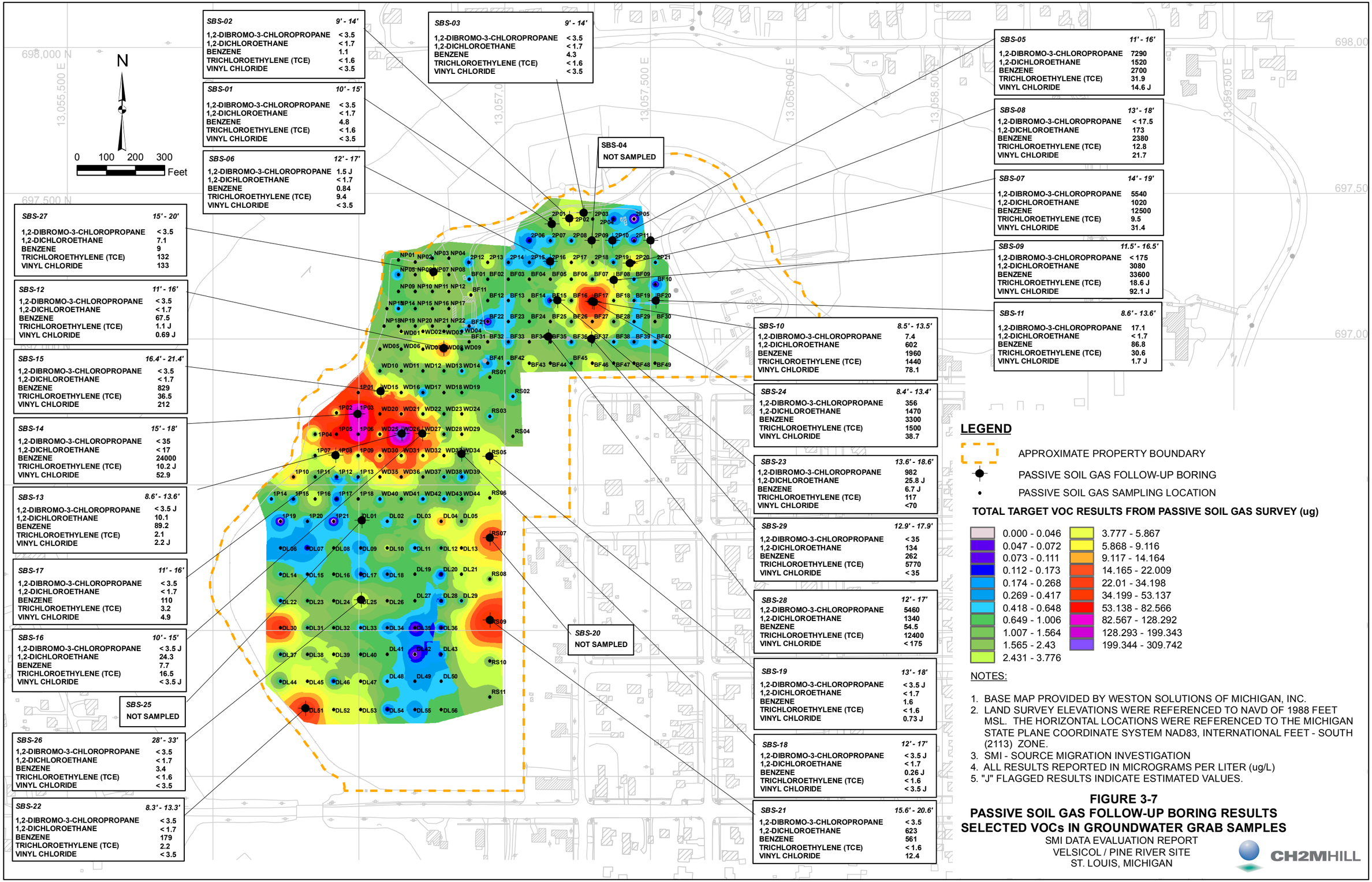
NOTES:

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3. SMI - SOURCE MIGRATION INVESTIGATION
4. ALL SOIL ANALYTICAL RESULTS REPORTED IN MICROGRAMS PER KILOGRAM (ug/KG)
5. "J" FLAGGED RESULTS INDICATE ESTIMATED VALUES.

FIGURE 3-6
PASSIVE SOIL GAS FOLLOW-UP BORING RESULTS
SELECTED VOCs IN SOIL
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

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NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION
4. ALL RESULTS REPORTED IN MICROGRAMS PER LITER (ug/L)
5. "J" FLAGGED RESULTS INDICATE ESTIMATED VALUES.

FIGURE 3-7
PASSIVE SOIL GAS FOLLOW-UP BORING RESULTS
SELECTED VOCs IN GROUNDWATER GRAB SAMPLES
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

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N

0 100 200 300
Feet

0 N
697,500 N
697,000 N
696,500 N
696,000 N
695,500 N
13,055,500 E
13,056,000 E
13,056,500 E
13,057,000 E
13,057,500 E
13,058,000 E
13,058,500 E
13,059,000 E
13,059,500 E

SBI-10 NSS
SBI-09 NSS
MW-27I ND
MW-16I ND
MW-35I ND
WMW-36I NS
MW-21I 1,1 DICHLOROETHANE 0.5 J BENZENE 7.6
SBI-07 (GRAB SAMPLES) 30' 1,2-DICHLORETHYLENE 1.4 J VINYL CHLORIDE 48.8 39.5' - 44.5' ND
SBI-08 NSS
WMW-29I 1,1 DICHLOROETHANE 17.1 J 1,2 DICHLOROPROPANE 1150 ACETONE 1030 BENZENE 3.4 J METHYLENE CHLORIDE 515
WMW-41I NSM
WMW-40I NSM
MW-22I ND
MW-30I ACETONE 28 TOLUENE 0.22 J
WMW-37I NSM
SBI-06 NSS
MW-17D2 (GRAB SAMPLE) 30' ND
WMW-17I ND
WMW-24I NSM
WMW-38I NSM
WMW-19I 1,1 DICHLOROETHANE 147 1,2 DICHLOROPROPANE 136 ACETONE 731 BENZENE 8960 CHLOROBENZENE 328 METHYLENE CHLORIDE 290 TOLUENE 395 TRICHLOROETHYLENE 41.2 J
WMW-42I NSM
MW-34I ACETONE 21 J BENZENE 0.26 J CYCLOHEXANE 0.42 J TOLUENE 4.5 J
SBI-05 (GRAB SAMPLE) 26' 1,1-DICHLOROETHANE 0.84 J ACETEONE 19.5 BENZENE 4.1
WMW-44I NSM
SBI-04 (GRAB SAMPLE) 24' - 28' ND
SBI-02 (GRAB SAMPLE) 45' - 50' VINYL CHLORIDE 14.4
SBI-03 (GRAB SAMPLES) 33' - 35' BENZENE 0.18 J TOLUENE 0.41 J 51.3' - 56.3' ND
SBI-01 (GRAB SAMPLE) 39' - 43' ND
MW-23I METHYLCYCLOHEXANE 0.63 J
MW-31I ND
WMW-45I NSM

GMW-16D
MW-16D2A
WMW-16D2
WMW-28S
WMW-28D
WMW-27S
WMW-27D
WMW-36D
WMW-36S
GMW-13
WMW-26S1
WMW-21D
GMW-10D
GMW-12A
WMW-21D2R
WMW-21DR
WMW-21D2
WMW-25S1
WMW-20S
GWM-10
WMW-21S
WMW-20D
ND
GMW-14
WMW-30D
WMW-30S
GMW-11
WMW-22S
WMW-22D
GMW-08
GMW-09
GMW-14D
WMW-17S
WMW-19S
WMW-17D
WMW-24S
WMW-24D
WMW-19D
WMW-19DR
WMW-42D
WMW-19D2
GMW-06
GMW-05A
WMW-34D
GMW-07
WMW-33D
WMW-44D
GMW-15D
WMW-23S
GMW-07D
GMW-04A
MW-31DA
WMW-31S
WMW-31D
GMW-03
GMW-02
WMW-39S
WMW-43D
WMW-39D
WMW-18S
GMW-01B
GMW-01A
WMW-18D
GMW-01D
GMW-01C
GMW-01D

LEGEND

- SOIL BORING
- INTERMEDIATE MONITORING WELL (EXCEPT MW-17D2, WHICH IS SCREENED IN THE LOWER UNIT)
- MONITORING WELL NOT SCREENED IN THE INTERMEDIATE UNIT

ND NO DETECTIONS OF VOCS

NSS NO SAMPLE FROM THIS LOCATION (NO INTERMEDIATE UNIT SAND PRESENT)

NSM NO SAMPLE FROM THIS LOCATION (MDEQ WELL INSTALLED AFTER COMPLETION OF FIELDWORK

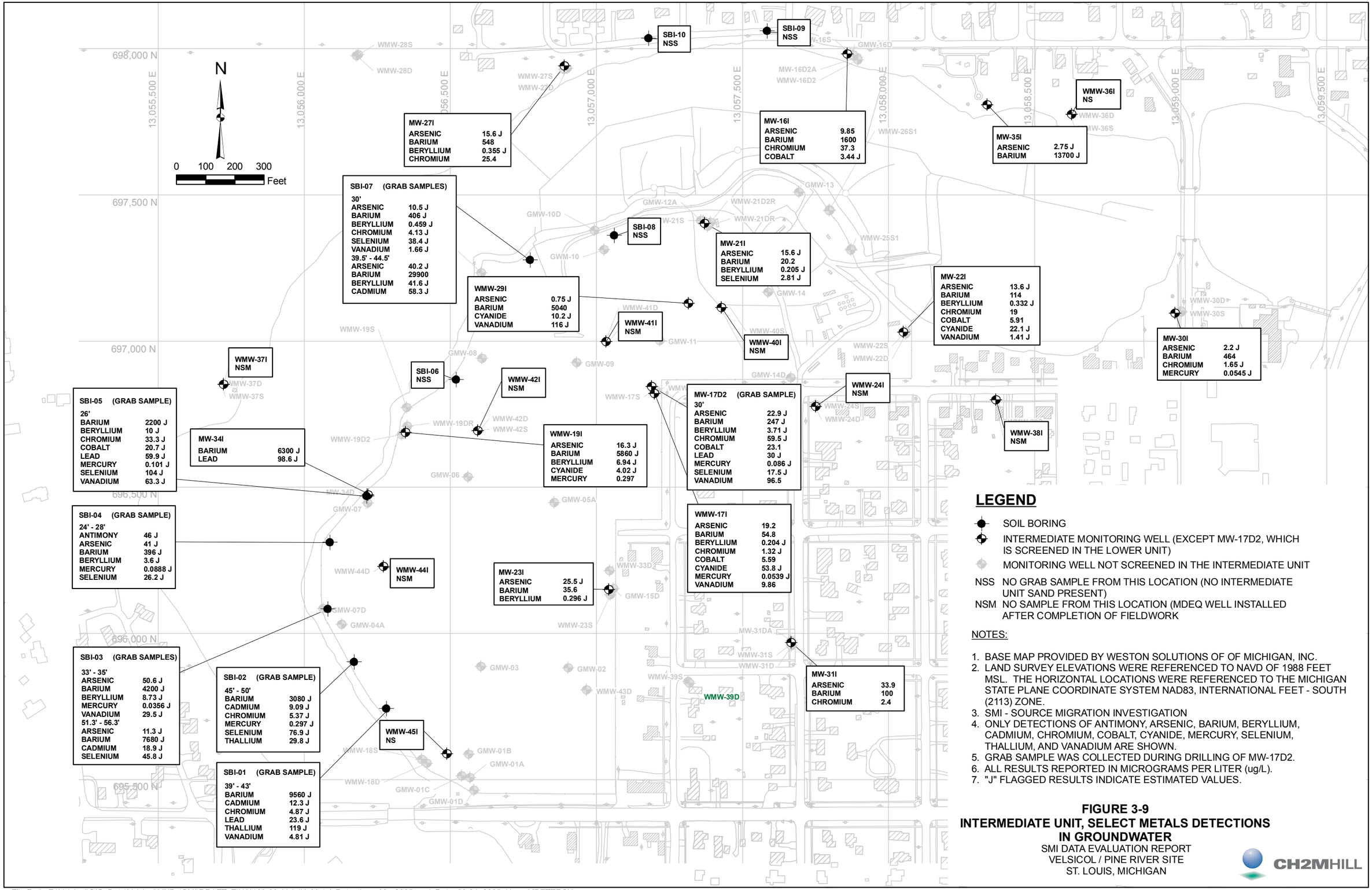
NOTES:

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2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION
4. ALL OTHER VOCs UNLESS REPORTED AS VALUES WERE NON-DETECT.
5. GRAB SAMPLE WAS COLLECTED DURING DRILLING OF MW-17D2.
6. ALL RESULTS REPORTED IN MICROGRAMS PER LITER (ug/L).
7. "J" FLAGGED RESULTS INDICATE ESTIMATED VALUES.

FIGURE 3-8
INTERMEDIATE UNIT, VOC DETECTIONS IN GROUNDWATER
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-08_Vel_GW_Sampling_VOC_Results_May2005.mxd, Date: November 21, 2005, User: MPETERSH



LEGEND

- SOIL BORING
- INTERMEDIATE MONITORING WELL (EXCEPT MW-17D2, WHICH IS SCREENED IN THE LOWER UNIT)
- MONITORING WELL NOT SCREENED IN THE INTERMEDIATE UNIT

NSS NO GRAB SAMPLE FROM THIS LOCATION (NO INTERMEDIATE UNIT SAND PRESENT)

NSM NO SAMPLE FROM THIS LOCATION (MDEQ WELL INSTALLED AFTER COMPLETION OF FIELDWORK

NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION
4. ONLY DETECTIONS OF ANTIMONY, ARSENIC, BARIUM, BERYLLIUM, CADMIUM, CHROMIUM, COBALT, CYANIDE, MERCURY, SELENIUM, THALLIUM, AND VANADIUM ARE SHOWN.
5. GRAB SAMPLE WAS COLLECTED DURING DRILLING OF MW-17D2.
6. ALL RESULTS REPORTED IN MICROGRAMS PER LITER (ug/L).
7. "J" FLAGGED RESULTS INDICATE ESTIMATED VALUES.

FIGURE 3-9
INTERMEDIATE UNIT, SELECT METALS DETECTIONS IN GROUNDWATER
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-09_Vel_IU_Metal_Detections_May2005.mxd, Date: 09 21, 2005, User: MPETERSH

N

0 100 200 300
Feet

13,056,500 E
13,057,000 E
13,057,500 E
13,058,000 E
13,058,500 E
13,059,000 E
13,059,500 E

698,000 N
697,500 N
697,000 N
696,500 N

MW-27I
< 1 J

MW-16I
86

MW-35I
4,600

WMW-36I
NSM

MW-21I
11

WMW-29I
10

WMW-41I
NSM

WMW-40I
NSM

MW-22I
180 J

MW-30I
360,000 (5/13/05)
290,000 (7/7/05)

WMW-37I
NSM

WMW-42I
NSM

WMW-17I
NR

WMW-24I
NSM

WMW-38I
NSM

WMW-19I
8,100

WMW-42I

MW-34I
58

WMW-44I
NSM

MW-23I
< 1

MW-31I
< 1

WMW-45I
NSM

50000
100000
150000
200000
250000

GMW-16S
WMW-28S
WMW-16D2
WMW-36D
WMW-36S
GMW-13
WMW-26S1
WMW-21D
WMW-21D2
WMW-25S1
GMW-10D
WMW-21S
WMW-20S
GWM-10
WMW-20D
ND
GMW-14
WMW-30D
WMW-30S
WMW-41S
GMW-11
WMW-40D
WMW-22S
WMW-22D
GMW-08
GMW-09
GMW-14D
WMW-17S
WMW-17D
WMW-24S
WMW-24D
WMW-37D
WMW-37S
WMW-19S
WMW-19D
WMW-19DR
WMW-42D
WMW-19D2
GMW-06
MW-34D
GMW-05A
WMW-44D
GMW-15D
WMW-23S
GMW-07D
GMW-04A
GMW-03
GMW-02
WMW-39S
WMW-43D
WMW-39D
WMW-31D
WMW-18S
GMW-01B
GMW-01A
WMW-18D
GMW-01D
GMW-01C
GMW-01D
WMW-32D

LEGEND

- INTERMEDIATE UNIT MONITORING WELL
- MONITORING WELL NOT SCREENED IN THE INTERMEDIATE UNIT
- NR NO SAMPLE RESULT REPORTED, SAMPLE LOST BY LAB
- NSM NO SAMPLE FROM THIS LOCATION (MDEQ WELL INSTALLED AFTER COMPLETION OF FIELDWORK)

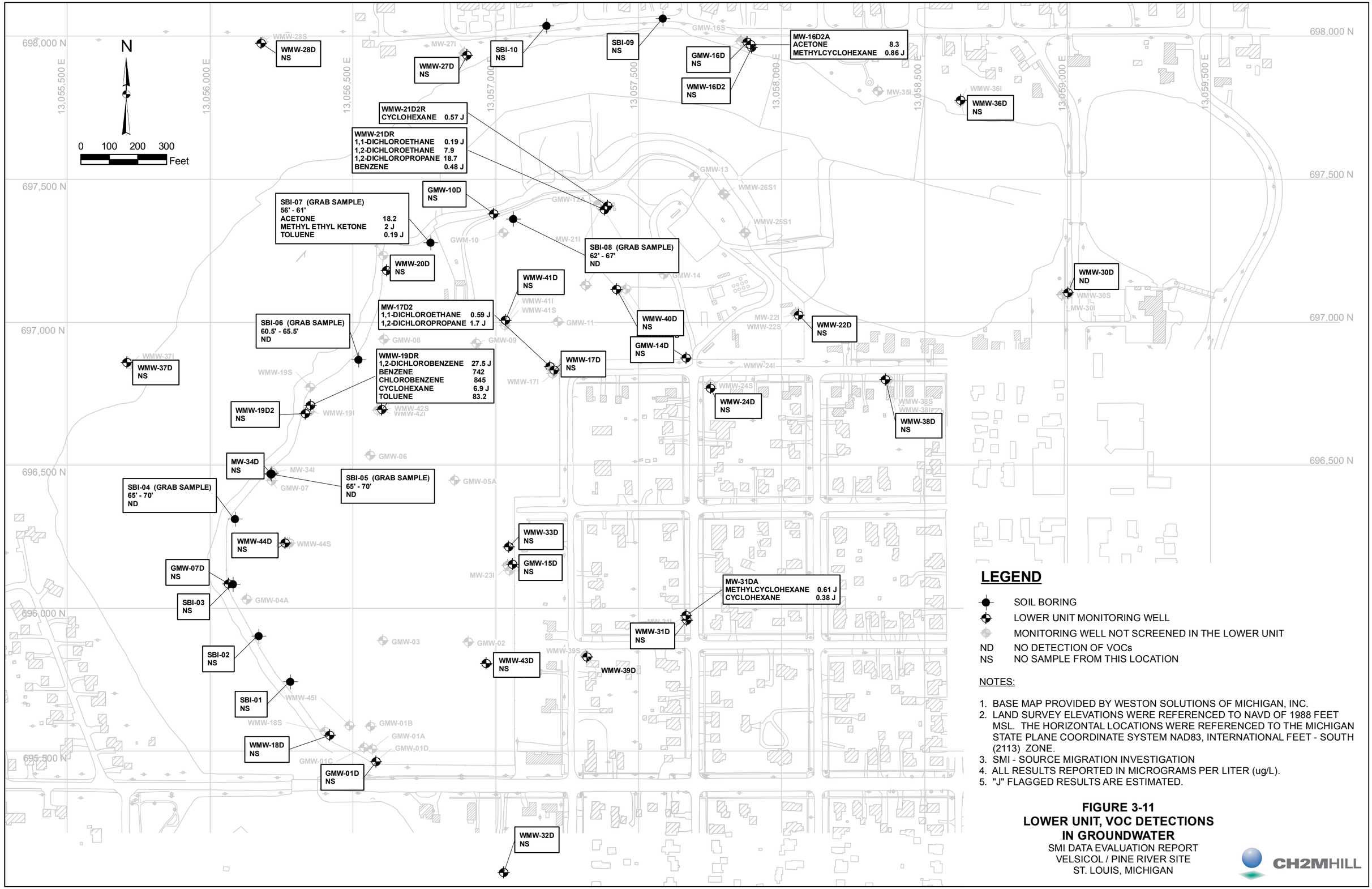
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION
4. ALL RESULTS REPORTED IN MICROGRAMS PER LITER (ug/L)
5. "J" FLAGGED RESULTS ARE ESTIMATED.

FIGURE 3-10
INTERMEDIATE UNIT, pCBSA RESULTS IN GROUNDWATER
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

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LEGEND

- SOIL BORING
- LOWER UNIT MONITORING WELL
- MONITORING WELL NOT SCREENED IN THE LOWER UNIT

ND NO DETECTION OF VOCs
NS NO SAMPLE FROM THIS LOCATION

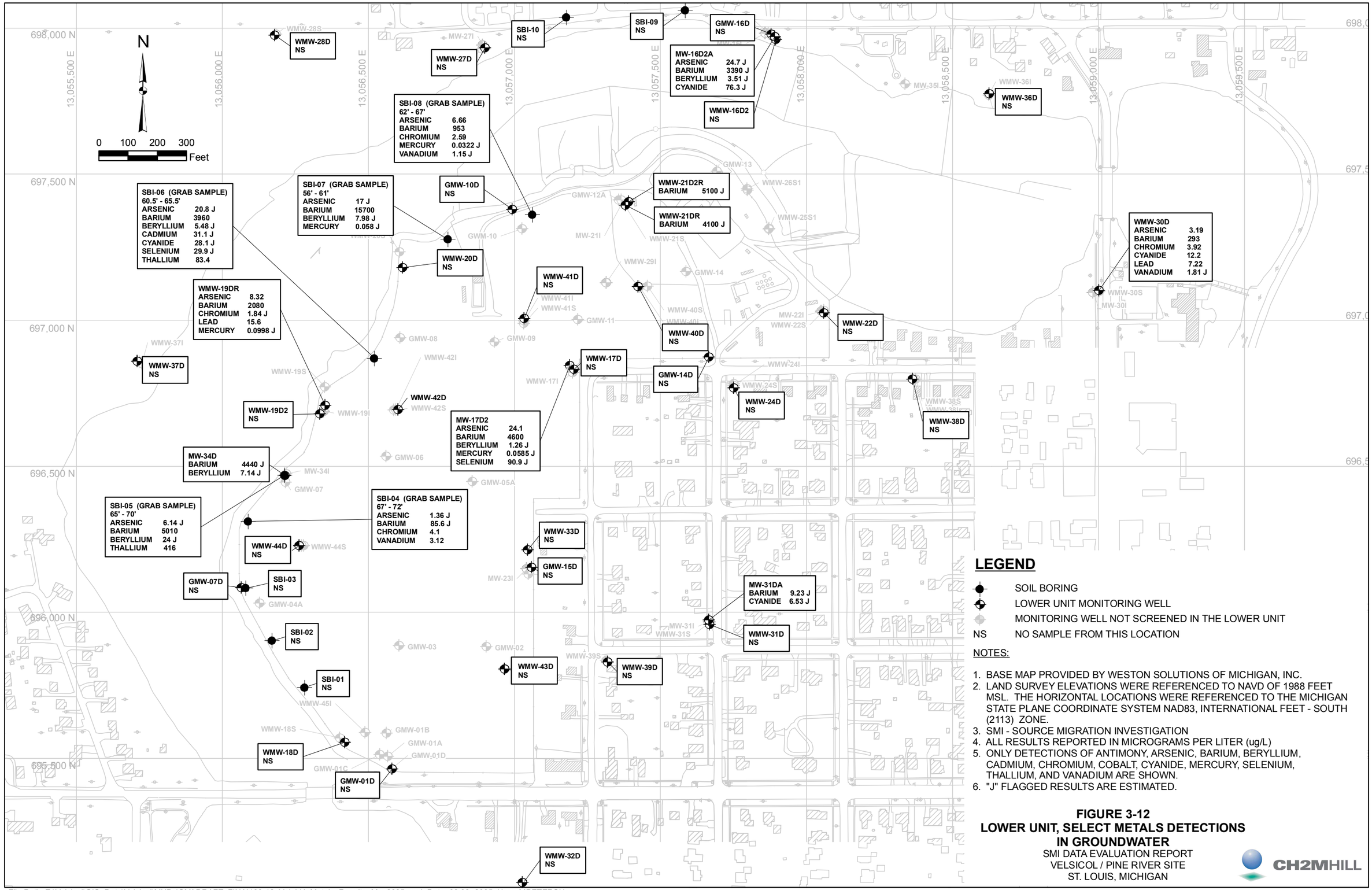
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION
4. ALL RESULTS REPORTED IN MICROGRAMS PER LITER (ug/L).
5. "J" FLAGGED RESULTS ARE ESTIMATED.

FIGURE 3-11
LOWER UNIT, VOC DETECTIONS IN GROUNDWATER
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-11_Vel_LU_VOC_Results_May2005.mxd, Date: November 21, 2005, User: MPETERSH



LEGEND

- SOIL BORING
- LOWER UNIT MONITORING WELL
- MONITORING WELL NOT SCREENED IN THE LOWER UNIT
- NS NO SAMPLE FROM THIS LOCATION

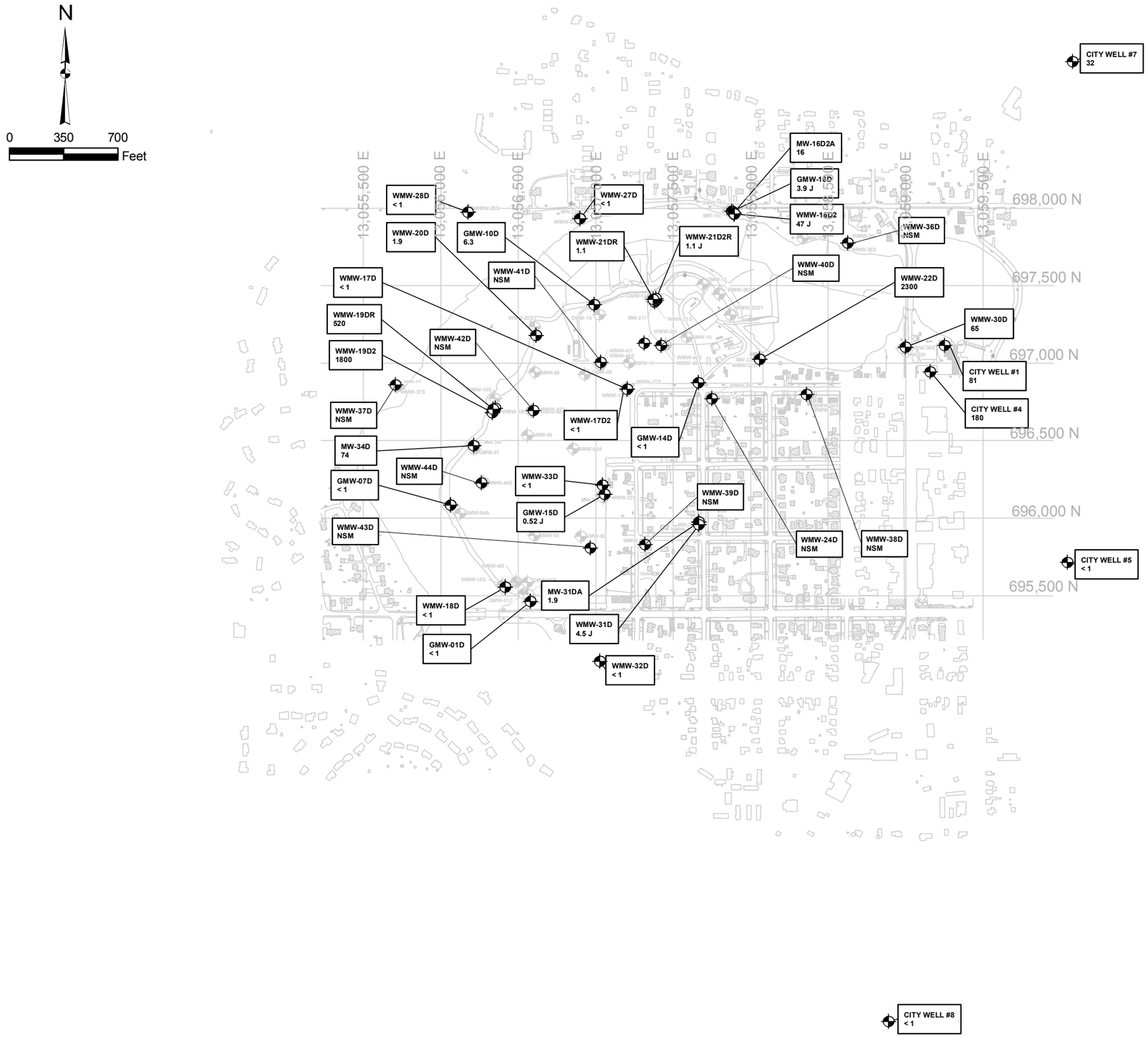
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION
4. ALL RESULTS REPORTED IN MICROGRAMS PER LITER (ug/L)
5. ONLY DETECTIONS OF ANTIMONY, ARSENIC, BARIUM, BERYLLIUM, CADMIUM, CHROMIUM, COBALT, CYANIDE, MERCURY, SELENIUM, THALLIUM, AND VANADIUM ARE SHOWN.
6. "J" FLAGGED RESULTS ARE ESTIMATED.

FIGURE 3-12
LOWER UNIT, SELECT METALS DETECTIONS IN GROUNDWATER
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-12_Vel_LU_Metals_Results_May2005.mxd, Date: 09 08, 2005, User: MPETERSH



LEGEND

- LOWER UNIT MONITORING WELL OR CITY WELL
- MONITORING WELL NOT SCREENED IN THE LOWER UNIT
- NSM NO SAMPLE FROM THIS LOCATION (MDEQ WELL INSTALLED AFTER COMPLETION OF FIELDWORK)

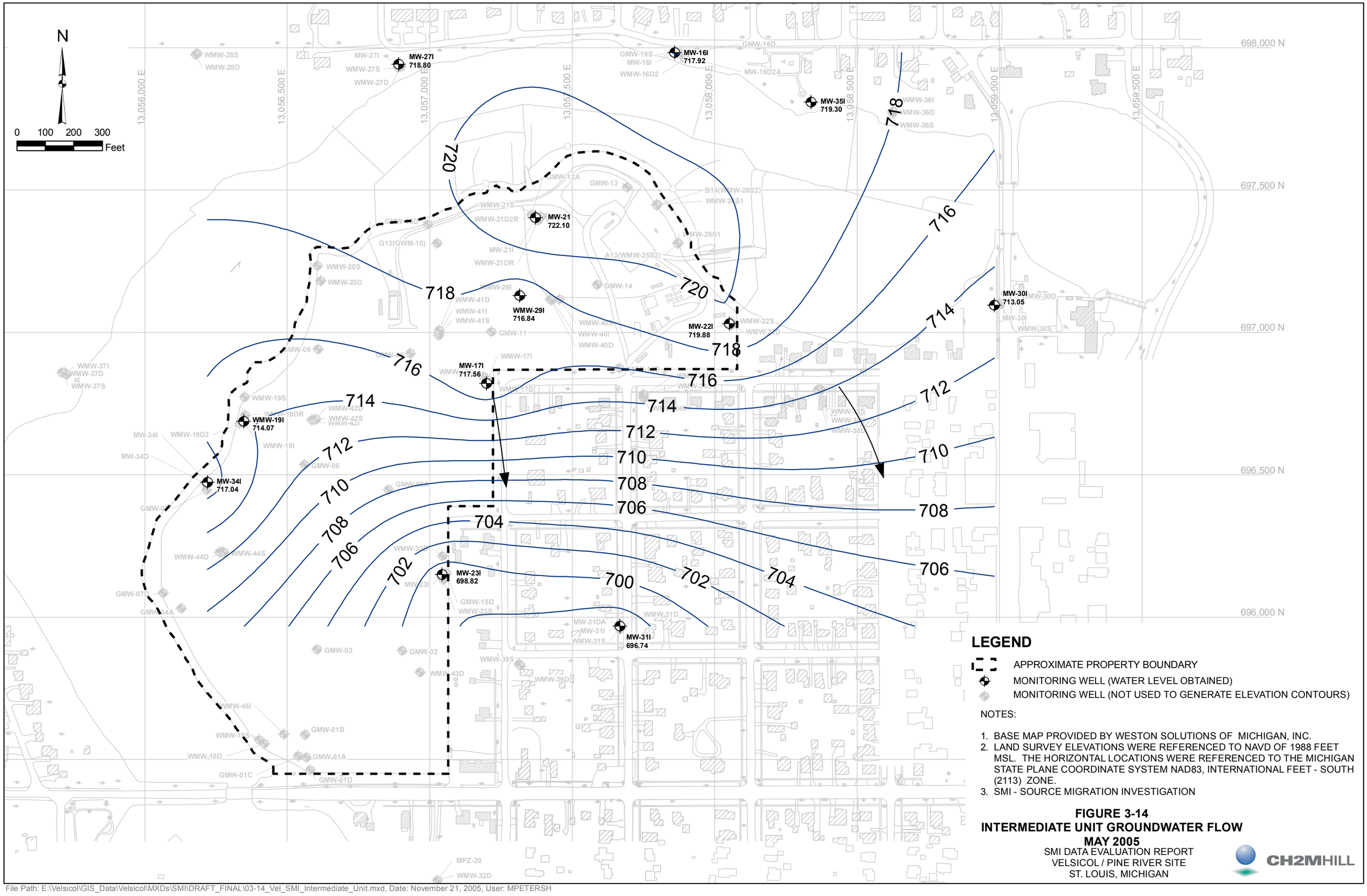
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION
4. ALL RESULTS REPORTED IN MICROGRAMS PER LITER (ug/L)
5. "J" FLAGGED RESULTS ARE ESTIMATED.

FIGURE 3-13
LOWER UNIT, pCBSA RESULTS IN GROUNDWATER
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-13_Vel_LU_pCBSA_Results_May2005.mxd, Date: November 21, 2005, User: MPETERSH



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- MONITORING WELL (WATER LEVEL OBTAINED)
- MONITORING WELL (NOT USED TO GENERATE ELEVATION CONTOURS)

NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-14
INTERMEDIATE UNIT GROUNDWATER FLOW
MAY 2005
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-14_Vel_SMI_Intermediate_Unit.mxd, Date: November 21, 2005, User: MPETERSH

N

0 100 200 300
Feet

13,056,000 E
13,056,500 E
13,057,000 E
13,057,500 E
13,058,000 E
13,058,500 E
13,059,000 E
13,059,500 E

698,000 N
697,500 N
697,000 N
696,500 N
696,000 N

MW-27I
716.84

MW-16I
716.50

MW-35I
706.94

CELL 6 AND CELL 7
DEWATERED TO ~ 700

MW-21I
722

WMW-29I
716

MW-22I
719.37

MW-30I
711.81

MW-17I
716.73

WMW-19I
712.74

MW-34I
716.14

MW-23I
695.62

MW-31I
692.05

716
718
720
714
712
710
708
706
704
702

WMW-28S
WMW-28D
MW-27I
WMW-27S
WMW-27D
GMW-16D
GMW-16I
MW-16I
WMW-16D2
MW-16D2A
WMW-36I
WMW-36D
WMW-36S
GMW-12A
GMW-13
B12(WMW-26S2)
WMW-26S1
WMW-21S
WMW-21D2R
MW-25S1
MW-21I
WMW-21DR
G13(GMW-14)
A13(WMW-25S2)
WMW-20S
WMW-20D
WMW-29I
WMW-41D
WMW-41I
WMW-41S
GMW-14
WMW-40S
WMW-40I
WMW-40D
GMW-11
WMW-22S
WMW-22D
MW-22I
WMW-30D
MW-30I
WMW-30S
MW-08
GMW-09
WMW-37I
WMW-37D
WMW-37S
WMW-17D
WMW-24I
WMW-24S
WMW-24D
WMW-38S
WMW-38I
WMW-19S
WMW-19DR
WMW-42D
WMW-42I
WMW-19D2
WMW-19I
MW-34I
MW-34D
GMW-01A
GMW-01
WMW-44D
WMW-44S
WMW-33D
MW-23I
GMW-07C
GMW-04A
GMW-15D
WMW-23S
MW-31DA
MW-31I
WMW-31S
WMW-31D
GMW-03
GMW-02
WMW-39S
WMW-43D
WMW-39D
WMW-45I
WMW-45S
GMW-01B
WMW-18D
GMW-01A
GMW-01C
GMW-01D
MPZ-20
WMW-32D

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- MONITORING WELL (WATER LEVEL OBTAINED)
- MONITORING WELL (NOT USED TO GENERATE ELEVATION CONTOURS)

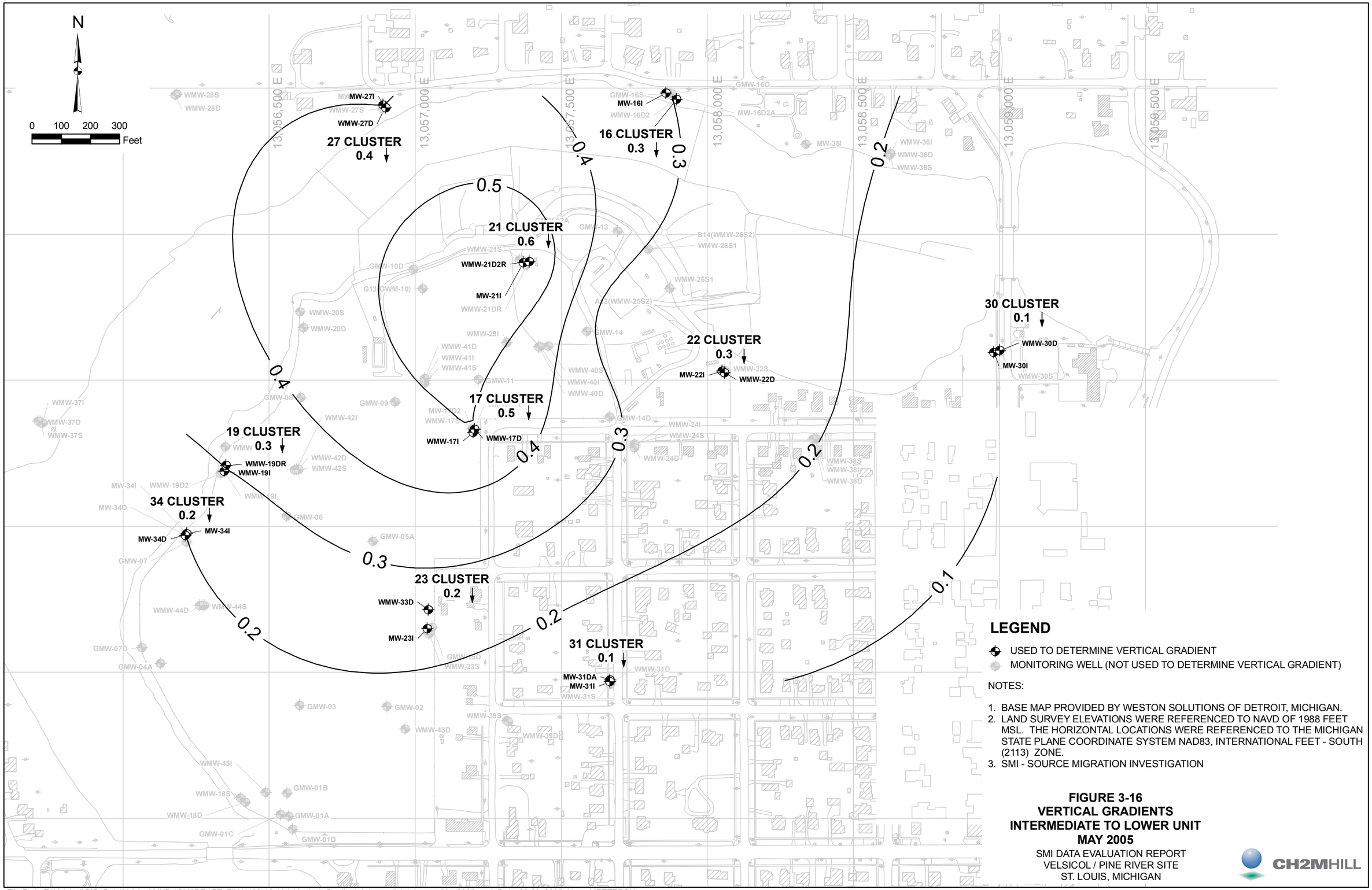
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-15
INTERMEDIATE UNIT GROUNDWATER FLOW
JULY 2005
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

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LEGEND

- USED TO DETERMINE VERTICAL GRADIENT
- MONITORING WELL (NOT USED TO DETERMINE VERTICAL GRADIENT)

NOTES:

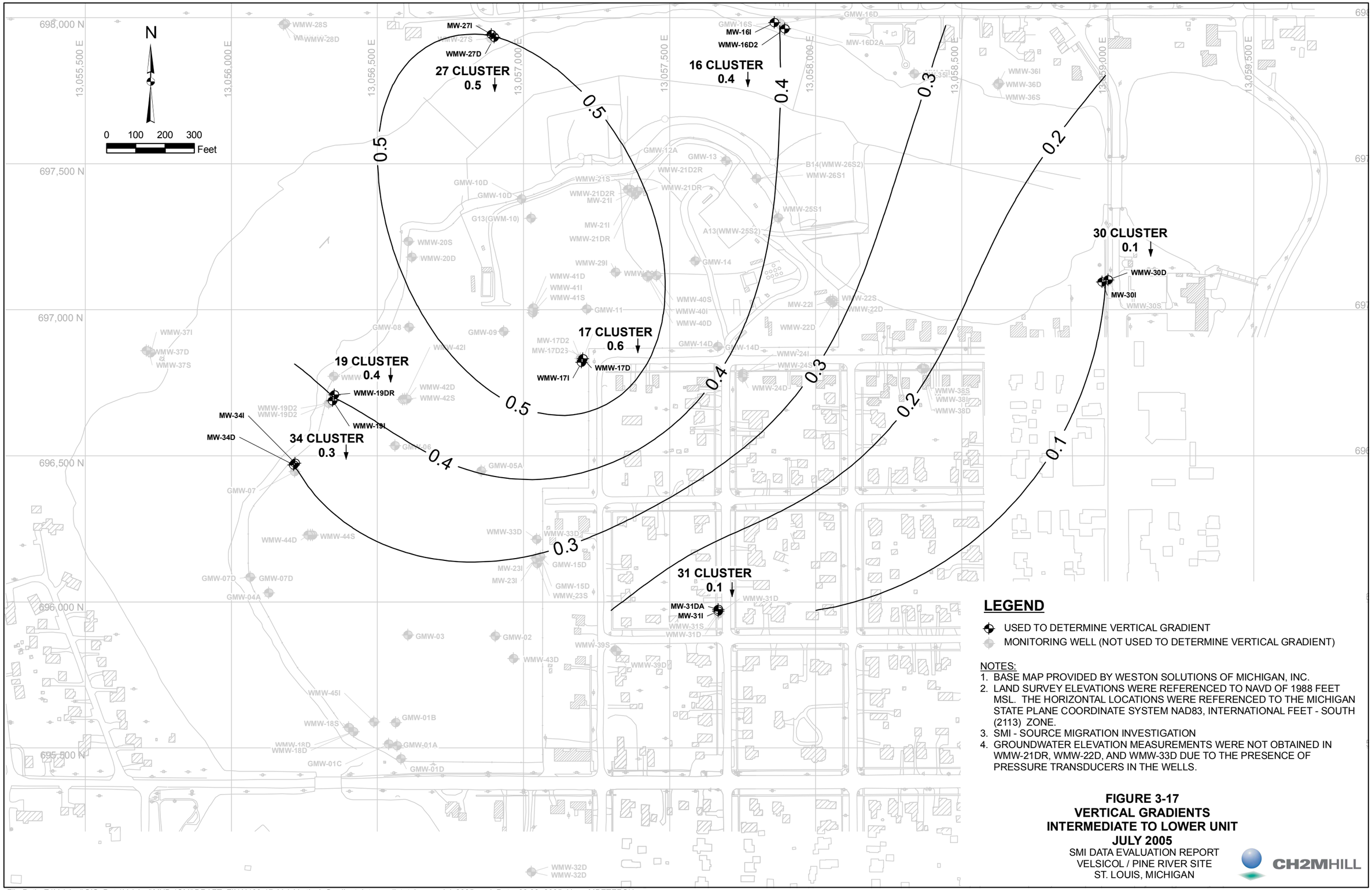
1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF DETROIT, MICHIGAN.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-16
VERTICAL GRADIENTS
INTERMEDIATE TO LOWER UNIT
MAY 2005

SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-16_Vel_Vertical_Gradient_IntermediatetoLower_May2005.mxd, Date: 09 08, 2005, User: MPETERSH



LEGEND

- USED TO DETERMINE VERTICAL GRADIENT
- MONITORING WELL (NOT USED TO DETERMINE VERTICAL GRADIENT)

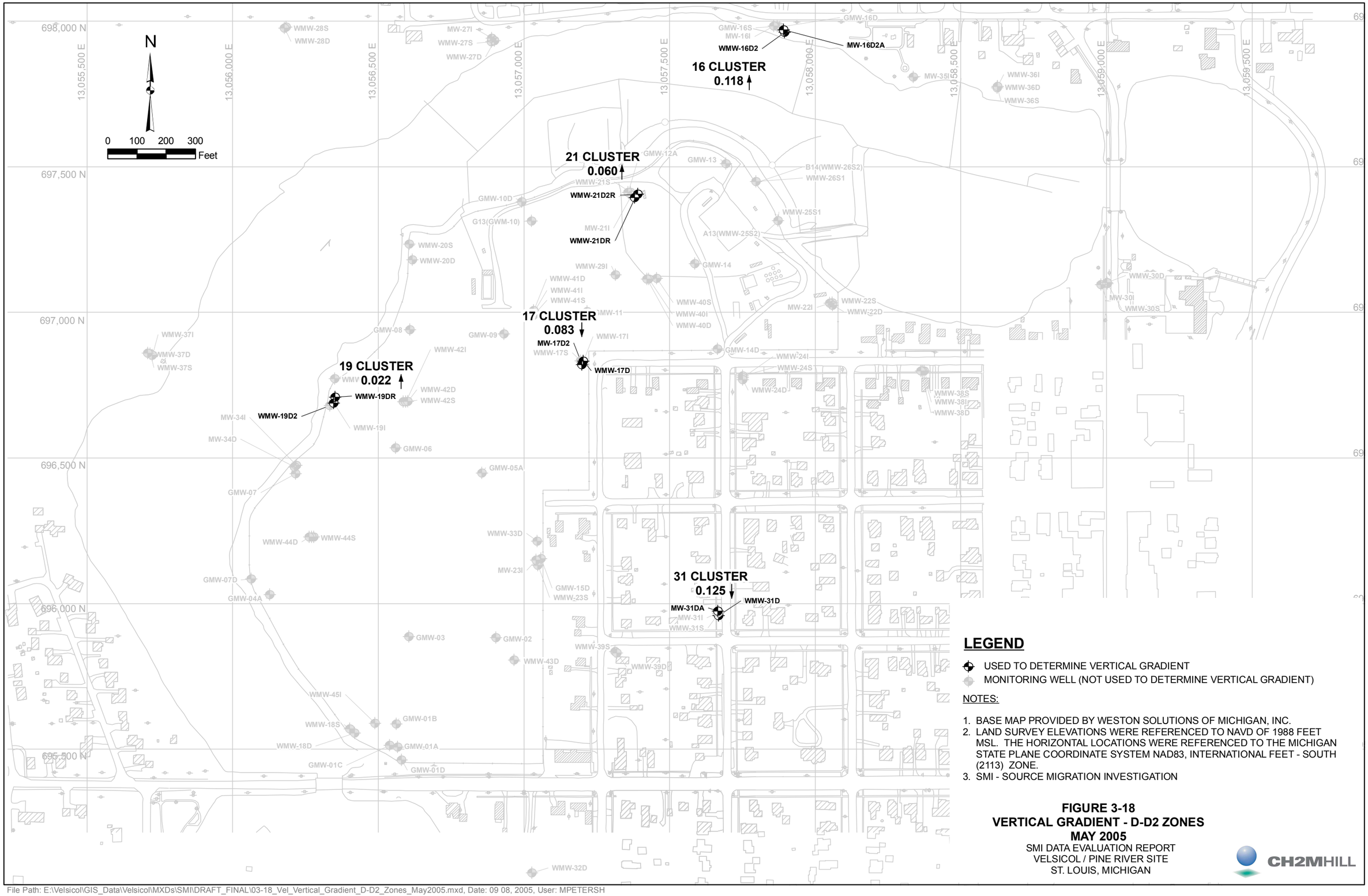
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION
4. GROUNDWATER ELEVATION MEASUREMENTS WERE NOT OBTAINED IN WMW-21DR, WMW-22D, AND WMW-33D DUE TO THE PRESENCE OF PRESSURE TRANSDUCERS IN THE WELLS.

FIGURE 3-17
VERTICAL GRADIENTS
INTERMEDIATE TO LOWER UNIT
JULY 2005
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-17_Vel_Vertical_Gradient_IntermediatetoLower_July2005.mxd, Date: 09 08, 2005, User: MPETERSH



LEGEND

- USED TO DETERMINE VERTICAL GRADIENT
- MONITORING WELL (NOT USED TO DETERMINE VERTICAL GRADIENT)

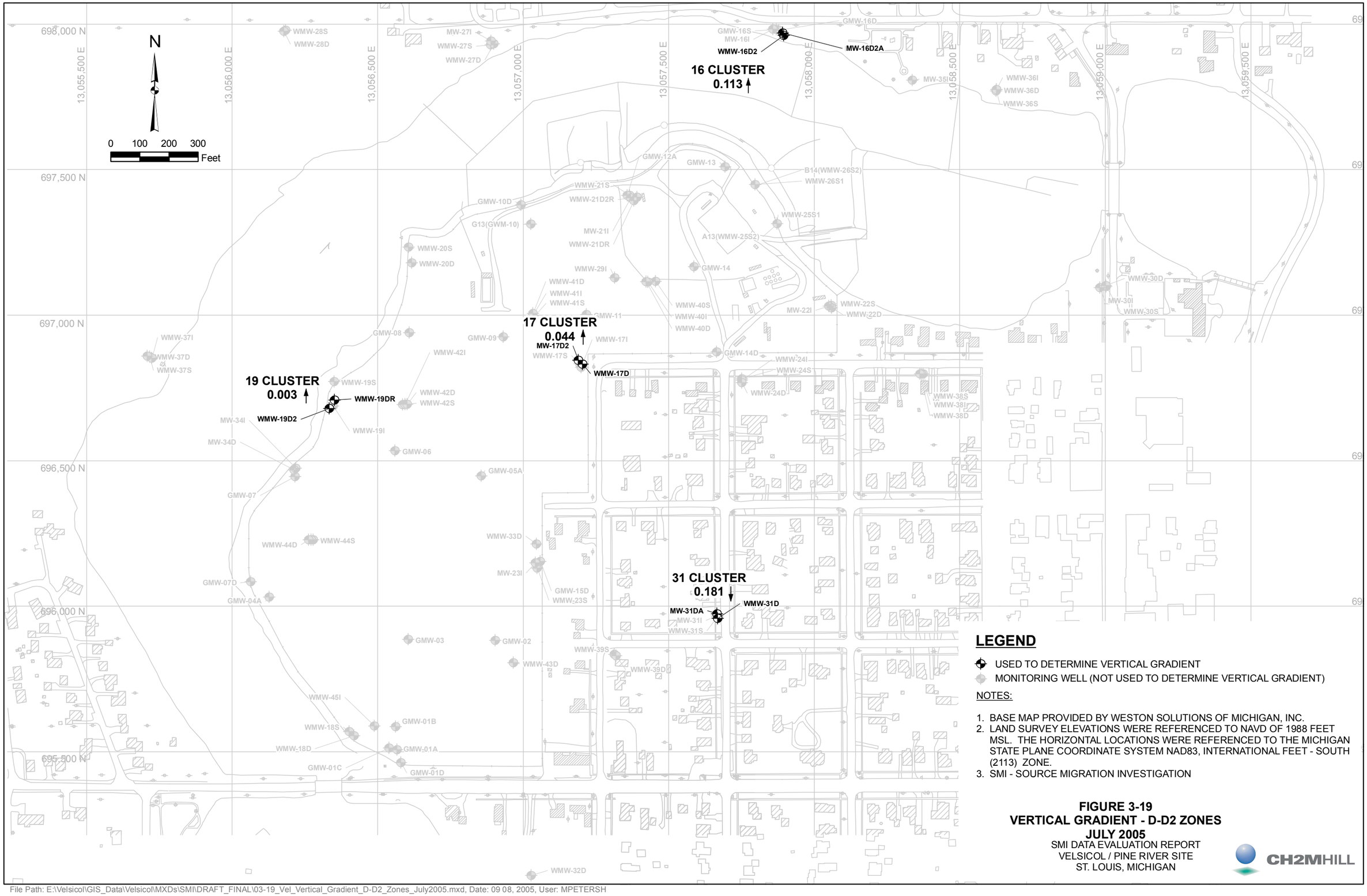
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-18
VERTICAL GRADIENT - D-D2 ZONES
MAY 2005
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-18_Vel_Vertical_Gradient_D-D2_Zones_May2005.mxd, Date: 09 08, 2005, User: MPETERSH



LEGEND

- USED TO DETERMINE VERTICAL GRADIENT
- MONITORING WELL (NOT USED TO DETERMINE VERTICAL GRADIENT)

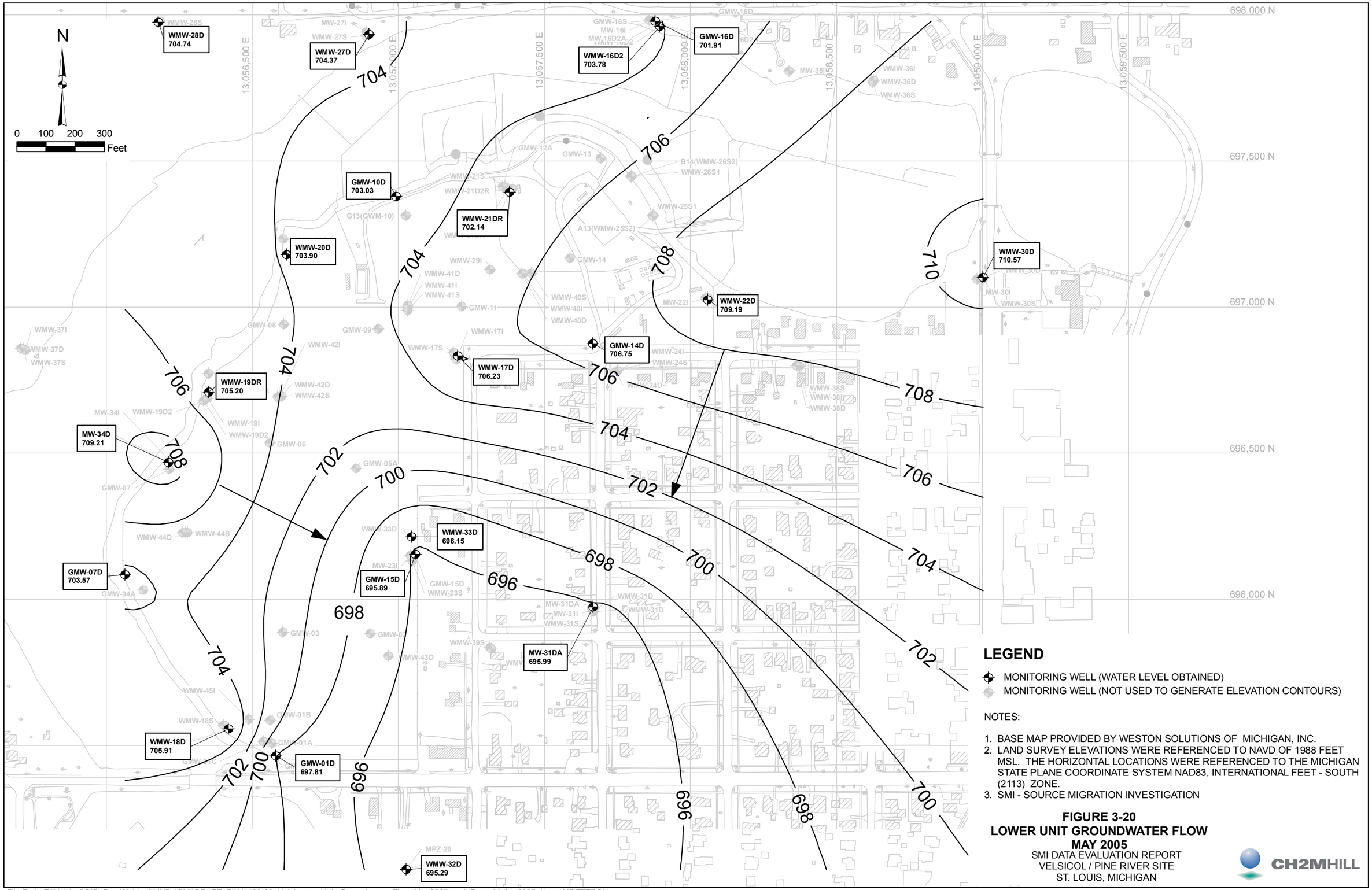
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-19
VERTICAL GRADIENT - D-D2 ZONES
JULY 2005
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-19_Vel_Vertical_Gradient_D-D2_Zones_July2005.mxd, Date: 09 08, 2005, User: MPETERSH



LEGEND

- MONITORING WELL (WATER LEVEL OBTAINED)
- MONITORING WELL (NOT USED TO GENERATE ELEVATION CONTOURS)

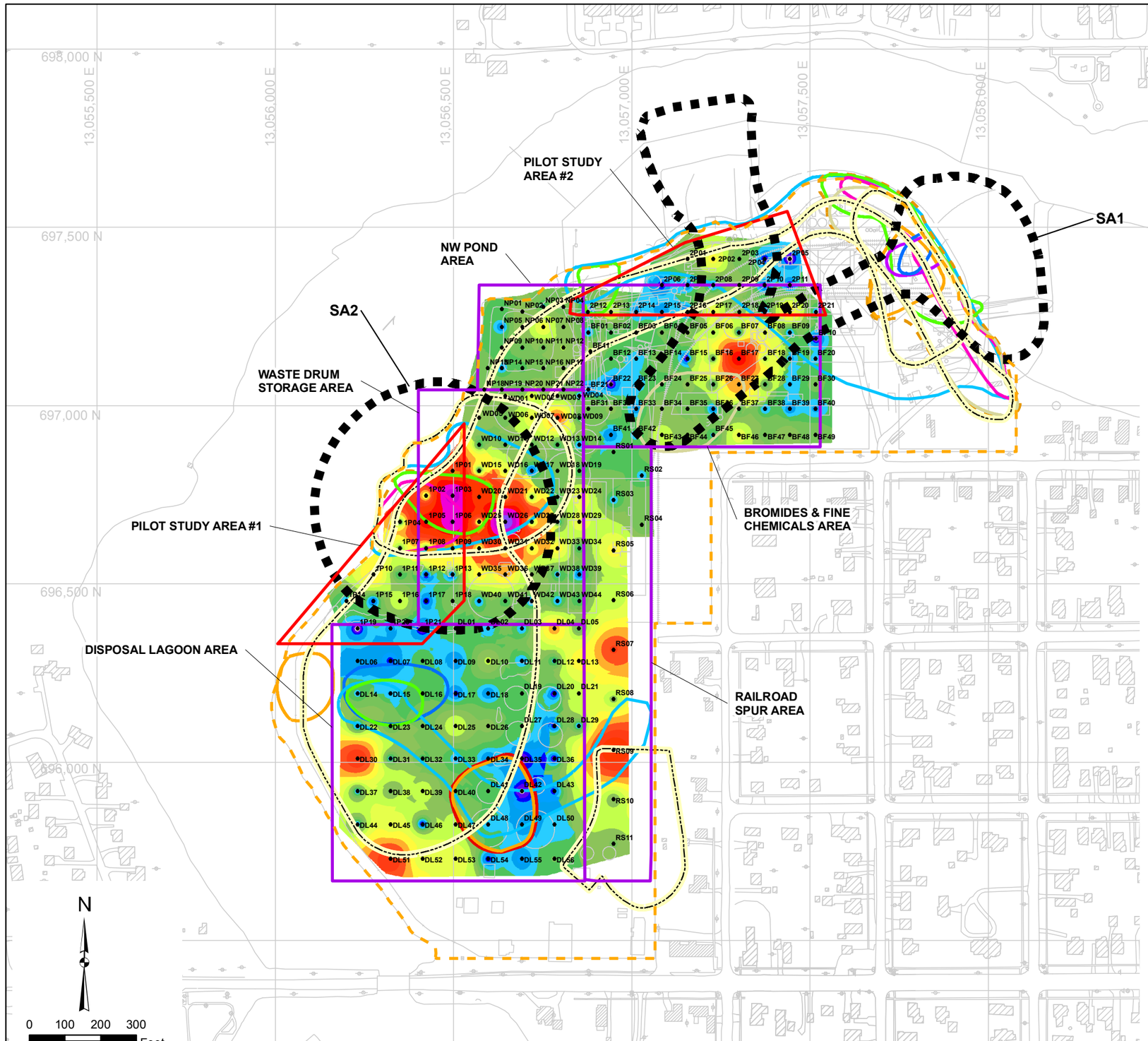
NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION

FIGURE 3-20
LOWER UNIT GROUNDWATER FLOW
MAY 2005
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\03-20_Vel_Lower_Unit_Groundwater_Flow_May2005.mxd, Date: 09 21, 2005, User: MPETERSH



LEGEND

- WESTON POTENTIAL SOURCE CONTAMINATION
- WESTON 1,2 - DCE HOT SPOT
- WESTON 2,4 - DDT HOT SPOT
- WESTON 4,4 - DDT HOT SPOT
- WESTON BENZENE HOT SPOT
- WESTON CHLOROBENZENE HOT SPOT
- WESTON IRON HOT SPOT
- WESTON NICKEL HOT SPOT
- WESTON RETAINED HOT SPOT
- WESTON TCE HOT SPOT
- CH2MHILLSOURCE AREAS (SA1 & SA2)
- APPROXIMATE PROPERTY BOUNDARY
- PASSIVE SOIL GAS SAMPLING LOCATION

TOTAL TARGET VOCs (ug)

0.000 - 0.046	3.777 - 5.867
0.047 - 0.072	5.868 - 9.116
0.073 - 0.111	9.117 - 14.164
0.112 - 0.173	14.165 - 22.009
0.174 - 0.268	22.01 - 34.198
0.269 - 0.417	34.199 - 53.137
0.418 - 0.648	53.138 - 82.566
0.649 - 1.006	82.567 - 128.292
1.007 - 1.564	128.293 - 199.343
1.565 - 2.43	199.344 - 309.742
2.431 - 3.776	

NOTES:

1. BASE MAP PROVIDED BY WESTON SOLUTIONS OF MICHIGAN, INC.
2. LAND SURVEY ELEVATIONS WERE REFERENCED TO NAVD OF 1988 FEET MSL. THE HORIZONTAL LOCATIONS WERE REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM NAD83, INTERNATIONAL FEET - SOUTH (2113) ZONE.
3. SMI - SOURCE MIGRATION INVESTIGATION
4. WESTON HOT SPOTS OBTAINED FROM DRAFT WORKING DOCUMENTS (RI - OCTOBER 2003; FS - NOVEMBER 2003)

FIGURE 4-1
SOURCE AREAS WITH HOT SPOTS
SMI DATA EVALUATION REPORT
VELSICOL / PINE RIVER SITE
ST. LOUIS, MICHIGAN

CH2MHILL

File Path: E:\Velsicol\GIS_Data\Velsicol\MXDs\SMI\DRAFT_FINAL\04-01_Vel_Source_Areas_with_HotSpots.mxd, Date: November 21, 2005, User: MPETERSH